

**UNIVERSITY OF OSLO**

**Department of informatics**

**The life and death of design  
ideas.**

**An analysis of the Oslo ColorTable  
Workshop**

**Master thesis**

60 credits

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# Preface

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# 1. Introduction

We live in a world surrounded by designed artifacts and experiences; from the everyday objects we surround our self with like the knives in the kitchen drawer to the cars we drive to the design experiences of digital content, architecture and even shopping.

Good design often goes unnoticed as it fulfills its purpose while less successful design can be a frustrating experience.

When we talk about design in our day to day lives our focus is often on the “quality” of the end result, and not on the design process.

In this thesis I take a closer look at the design process, and specifically in collaboratory group setting, in an attempt to answer the following questions; what actually happens when we design? And why does the design result turn out the way it does?

To answer these questions I have analyzed a design process from the 2009 Oslo ColorTable Workshop.

The Oslo ColorTable workshop was a two session workshop that took place on the 26th and 27th of November 2009, part of multi-year research project centered on Blindern station.

The purpose of the workshop was to explore and design solutions for the new Blindern station area in a collaborative design setting, bringing together architects, designers, University researchers, students (representing different user types and interests), local residents, local shop owners, public transport representatives and universal access researchers, using a participatory tool called the ColorTable, a prototype tangible user interface for collaborative urban planning utilizing MR-mixed reality technology, developed at the Technische Universität Wien as part of the EU funded IPCity project.

## **My role**

As part of the Oslo workshop team, my primary role was, in cooperation with the Vienna team, to produce the panoramas and maps which were going to be used during the workshop. This involved taking part in location scouting, taking the necessary pictures, stitching and editing the panoramas to provide the participants with virtual space in which they could design, and editing the maps to the desired detail level and scale.

When the Vienna team arrived in Oslo, I assisted in the configuring of the studio where the workshop took place and helped gather any loose ends on content side of the ColorTable system.

During the workshop my role was to observe and contribute to the documentation of the events.

After the workshop, upon receiving a copy of the raw video tapes and audio recording, I digitalized the tapes and started to edit together the video and audio files from the fixed and mobile camera as well as the over-head microphone from day one of the workshop.

The video material from day two which I base my analysis on was edited by the Vienna team.

## What is design?

Before embarking on this journey to understand what happens when we design, it is important to understand what design is and what designing means. For insight and answers into these questions I turn to the writings of Bratteteig & Stolterman and Schön & Wiggins.

*“Design can be understood as a process that includes activities concerned with three levels of abstraction. At the most abstract level we find a vision, at a more concrete level an operative image, and at the most concrete level we find the design specification”* (Bratteteig & Stolterman, pp. 294)

All three levels; vision, operative image and design specification are present in various degrees during the process and intermingle during their creation (Bratteteig & Stolterman). Vision is described as a *“distant visual or conceptual idea of a possible design”* at first crude or partial, difficult to specify with possible contradictions and impossibilities, a vision can be based on ideas of a technical feature, functional and aesthetic liking or mood.

Bratteteig & Stolterman describe the operative image as *“the first attempt to make a design proposition external, ie, manifested outside a person's imagination.”*, it's external manifestation means that *“it is subject to refinements, restructuring, redefinition and to actual manipulation as an object.”* The operative image and vision is mutually influenced by each other and *“As soon as the operative image becomes more fixed and stable it may change gradually into a first attempt at a final design specification [Stolterman, 91].”*

In the realm of group design Bratteteig & Stolterman write the following about the operative image:

*“The operative image serves as a means to concretise the common goal and task of the group, even if individual members may interpret and account for the image in different ways, based on their particular knowledge and skills. The collective operative image is a result of a negotiation in the group based on one or more individual operative images.”*

The design specification is the most “concrete level” of the activities in design Bratteteig & Stolterman writes the following about the design specification:

*The specification thus is a translation of the operative image to a language in which the material conditions for the design are expressed. The description will enact as a prescription for constructing and realising the design.”*

## What is designing?

In contrast to Bratteteig and Stolterman's more fluid intermingling motion between vision and operative image before a final translation to final design specification, Schön & Wiggins see design as a more specific step by step process.

Schön & Wiggins(1992) write that architectural designers, design through a process of *seeing - moving – seeing*.

A designer sees what is '*there*' and based on a subjective judgment of quality within a specific domain or domains, perform a '*move*' in which a transformation of the design takes place, the designer then again '*sees*' judging based on the designers '*appreciative system*' whether the '*move*' has succeeded or failed at solving the problem or as Schön & Wiggins writes, whether a '*move*' has "*affirmed rather than negate*".

When '*seeing*' the designer not only registers visually what is there, but the designer "*also constructs its meaning – identifies patterns and gives them meaning beyond themselves*".

Through a sequential structure of seeing-moving-seeing the designer is able to manage complexity, this reflective conversation help the designer recognize unintended consequences in other domains than the domain the prospective solution initially was formulated.

Schön and Wiggins step by step interpretation is not that different to Bratteteig and Stolterman three levels of abstraction process. There is however in my view a difference in the relation between vision and operative image, in Schön & Wiggins writings there is no distinct separation between the two, '*seeing*' is arguably a combination of the two, and '*moves*' are moves on this combined vision and operative image towards a final design specification.

Just as Bratteteig & Stolterman's vision serves as a cognitive guide towards an operative image Schön & Wiggins '*seeing*' relies on designers '*appreciative system*' for guidance when judging whether a '*move*' was successful or not.

With the knowledge of what design and designing mean we can move on to how one can apply the process of designing in a collaborative setting/fashion.

## Participatory Design

The Oslo ColorTable Workshop was a Participatory Design workshop.

Participatory Design and specifically the Scandinavian tradition, is an approach to system development which goal is to increase workplace democracy through user participation in the development process. [Bjerknes, Bratteteig, 95]

By involving users in the design process one seeks to improve their influence on decisions that will affect them. Bjerknes & Bratteteig writes that “*the degree of influence and power varies.*” and as we will see, this holds true for the design process analyzed in this thesis.

A second important concept in Participatory Design is the concept of “*Mutual learning*”. “*Mutual learning means that users and designer learn from each other during the design process*” [Bratteteig, 97]

Mutual learning is closely linked to concepts found in the theories of Schön & Wiggins and Langley et al. which are central theories applied in this thesis.

Bratteteig writes, based on her experience from the Florence project, “*that mutual learning is difficult to achieve, ....., but that a successful process of mutual learning creates new possibilities ...*” which we will see in chapter 8.

“True” design, in the spirit of Participatory Design, is difficult to achieve since it, among many things, requires a transfer of power from stakeholders to users. In this thesis we will see that this transfer of power comes as a result of mutual learning.

## Design Ideas

The title of this thesis is “The life and death of design ideas” but what are design ideas?

From Bratteteig & Stolterman design ideas can be understood as a combination of vision and operative image, it has a representation by the fact that it can be spoken about but not a physical representation, design ideas are cognitive representations.

In Schön & Wiggins design ideas can by my interpretation be understood as the intermediary product of a seeing-move-seeing process, and is in my understanding a physical representation on which one moves and judges based on appreciation.

In my analysis I have identified the following characteristics that I mean identifies a design idea. These characteristics will be analyzed further in chapter 4.

1. The acceptance of the idea by other participants
2. The adaptation of an idea by building upon it / adding to it
3. A design idea is advocated someone other than the originator
4. A design idea has a physical representation, but properties may be assigned by ways of spoken words expanding the mutual understanding between participants/designers

From the characteristics one can see that the characteristics depicts a process similar to Bratteteig & Stolterman’s description of design, starting with the establishing of a shared vision and an operative image and a design description in the form of a physical representation part of the final design result.

The process of adding or building upon an idea are similar to ‘moves’ as described by Schön & Wiggins, the same can also be said for the physical manipulation of representations on the ColorTable itself.

## Structure of argumentation

During the visual analysis of the data material I observed a number of different user action and interaction patterns. In chapters 4 through 8 I present, analyze and compare these different patterns to the theories of Schön & Wiggins and Langley et al..

The first pattern I observed in my analysis was the pattern I conceptualized as “Design Ideas”. The Design Idea pattern has a set of specifically identifiable characteristics which will be discussed in chapter 4, among them their Participatory nature and the presence of the idea in the final design specification. Chapter 5 conceptualizes a pattern different to Design Ideas but similar to the design process described by Schön & Wiggins, a pattern which I have named “Non-Participatory ideas”.

Not all ideas become Design Ideas, in chapter 6 and 7 I analyze the reason for this, discussing the act of actively blocking ideas as well as the reason for why Design Ideas die, focusing on the act of abandoning / surrendering ideas.

Participatory Design is an idealistic goal and not easily achievable in practice, in chapter 8 I present my conceptualization named “Redesign”, which is a rich example of Participatory Design.

Having done the visual analysis before the narrative analysis it may seem counterintuitive to present this analysis after the narrative analysis. The reason and thought behind this, is to help the readers recognize how closely linked my initial visualization are to the conceptualizations after having read the detailed narrative analysis and make them see how these interaction patterns can be read from the trajectories of the bubbles in the bubble animations.

In chapter 10 I reflect on my conceptualizations and discuss how the theory of Schön & Wiggins and Langley et al. contributed to my analysis.

## **2. The Oslo ColorTable Workshop**

In the following section there is a description of the Blindern and Blindern metro station area followed by a short description of the Color Table, the events of the workshop days, a description of the participants as well as reflections over factors influencing the outcome of the workshop.

### **2.1 Description of the Blindern area.**

The University of Oslo is located at Blindern, an area 3 kilometers north-west of the city center, between Ring 3 and Vestgrensa to the north, Sognsveien and Ring2 to the east, Blindernveien / Marienlyst to the south and Vindern in the west.

The campus is divided in two by the Metro tracks, to Sognsvann and Nydalen, running along Gaustabekkdalen, with the old / main campus on the east side of the tracks and the new campus west of the tracks.

### **2.2 Description of the Blindern station**

Blindern station is located south of the campus center point, and used to be the south-west corner of the old / main campus.





**Picture 1 - Blindern station area looking west from the corner of Blindernveien and Apalveien.**

The station is situated in a residential area well known for its functionalistic architecture. In the second half of the eighties and early nineties, the stations along the metro track were upgraded to accommodate longer trains running on power from a third rail, replacing the overhead wire power source used by the two carriage trains. The switch to a third rail power source meant that all level crossings needed to be removed, this and the extension of the platforms at Blindern station meant that the Blindernveien would be cut in two by the station.<sup>1</sup> A bridge was erected to provide access to both platforms and to allow pedestrian, bicyclist, etc. to move between the areas east and west of the station.

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<sup>1</sup> [http://en.wikipedia.org/wiki/Sognsvann\\_Line](http://en.wikipedia.org/wiki/Sognsvann_Line)



**Picture 2 - Looking towards the station from the west**



**Picture 3 – Bridge and station seen from just beyond the west side platform**



**Picture 4 - Blindern station looking north, north-east**

There are two metro stations on the University campus area, Blindern station to the south and Forskningsparken station to the north

Forskningsparken / Research Park is located between these two stations, providing students and staff with two alternatives for travel.

## **2.3 Description of the workshop participants**

### **Day 1**

Local – Architect

Student1 - PhD. Student - environmental psychology

Student2 - Masters Student - informatics

Student3- Masters Student - informatics

Shop1 - Local shop owner

Shop2 - Local shop employee - interior architect

Interpreter - PhD. Student - informatics

### **Day 2**

Architect - Architect at the University

BridgeDesigner - designer of the new bridge proposal

Bicyclist - Associate professor, informatics

UniversalAccess - Researcher - universal access

SoundResearcher - Postdoctoral researcher in music

LocalResident - Material scientist

PublicTransport - Masters Student informatics - working for Trafikanten AS

PublicTransport2 - Masters Student informatics - working for Trafikanten AS



## 2.4 The workshop day

Each workshop day began with a meet-and-greet session, followed by an hour of instruction on how to use the Color Table. The participants were then given the task of exploring the current situation around the station area by establishing flows and placing content. After the exploration phase, the participants proceeded to experimenting with and design new solutions and improvements, moving between the different panoramas and locations available. The moderator supported the participants when needed, and guided the participants through the various tasks.

When the participants were satisfied with a design or wanted to move on to a different area, the design was saved so the participants could return to the location/design later.

At the end of the day the moderator summed up and discussed the designs with the participants.

## 2.5 The ColorTable - Description of functionality



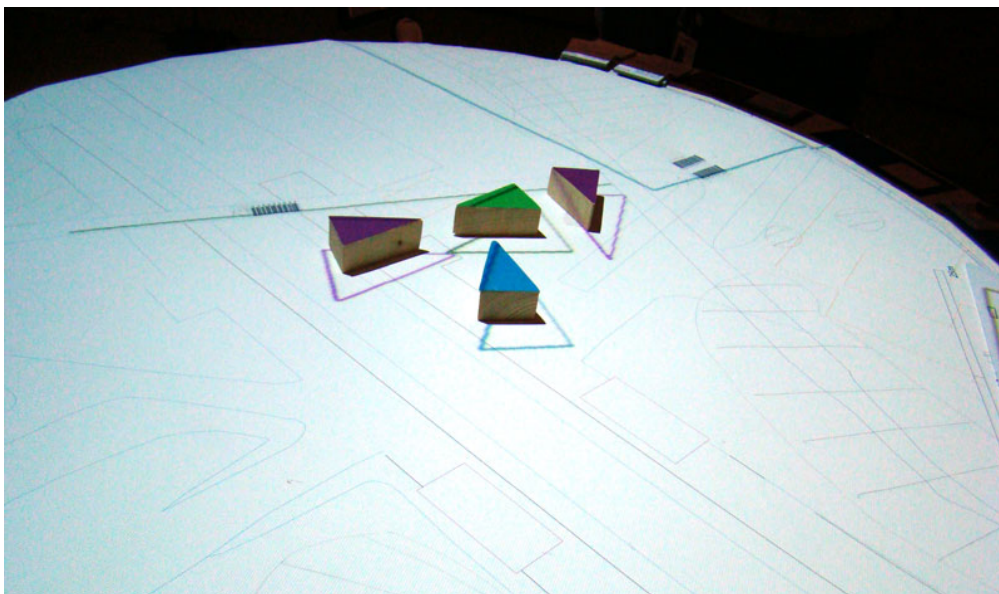
**Picture 5 - The ColorTable with map, barcode scanner, barcode cards and RFID readers (colored rectangles along the edge)**

The Color Table is a tangible user interface for urban planning and design.

In the center of the table there is a map of the area of interest, the maps come in different scales and are changed to allow precise placement of tokens.

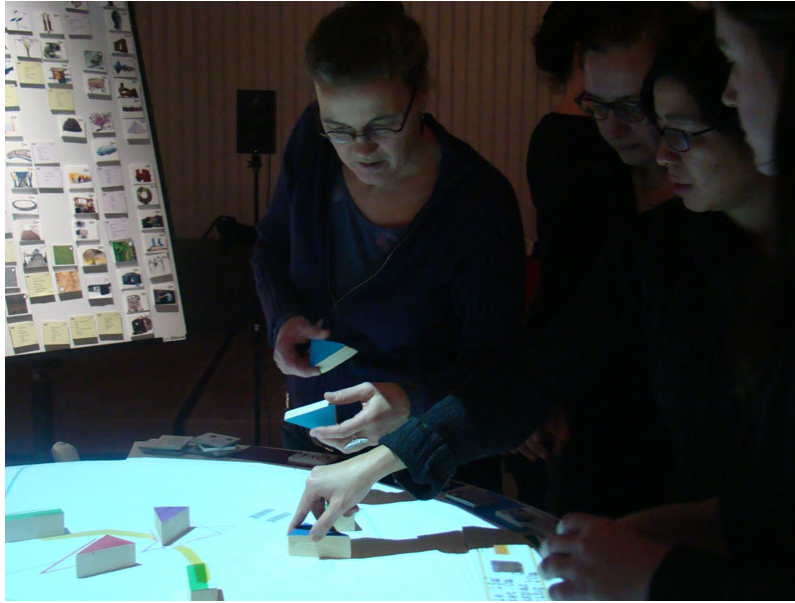
Along the edge of the table there are eight RFID readers, six of the RFID readers have colors assigned to them and are used to assign content to equally colored tokens, the last two readers are used to assign properties as scale, densities etc.

The users select content cards from a content board, visible on the left side in Picture 7 - Tangible user interface tokens (photo: Lisa Ehrenstrasser), place the card on one of the colored RFID readers which reads the RFID tag, queries a database for the requested content and assigns the content in question to the color indicated on the reader. The users can then proceed to place a token with the same color on the map and the content is then visible to the users on the wall projection. The position of the token on the map is tracked by an overhead camera and changes are updated on the wall projection in real-time.



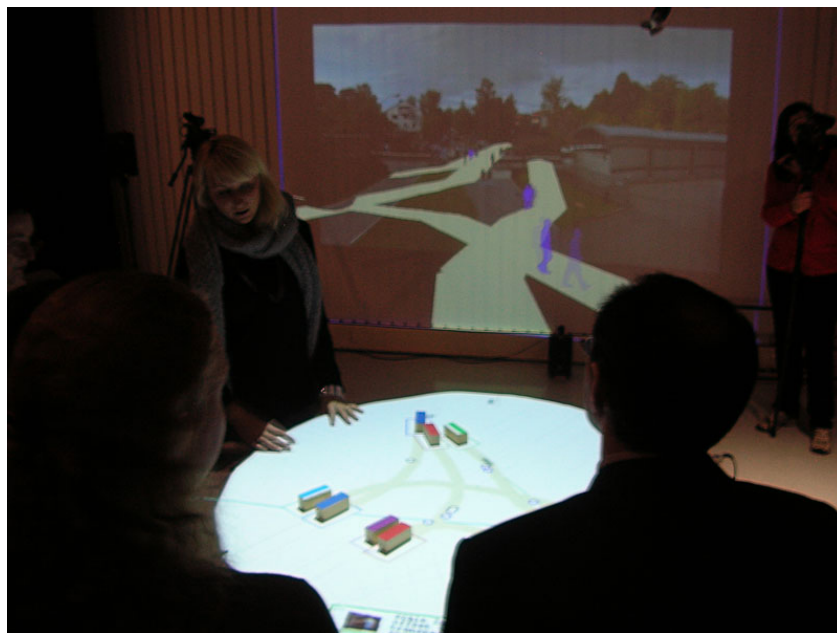
**Picture 6 - Projected triangles indicates that the object token is tracked (photo: Lisa Ehrenstrasser)**

There are several types of token shapes, triangular tokens represents content objects, for example a building, a tree, a bench, etc.



**Picture 7 - Tangible user interface tokens (photo: Lisa Ehrenstrasser)**

Rectangular tokens have a different purpose; they are used to establish flows between two points. A flow is basically a path between two points on which an animation can travel, tokens of the same color, represent the start and end point of one specific flow, examples of flow are pedestrian flows, bicycle and car flows. Each flow can be assigned different properties, like density, by placing a properties card on one of the two no-colored readers and applying the desired properties using the barcode reader.



**Picture 8 - Flows and rectangular tokens. (photo: Lisa Ehrenstrasser)**

## 2.6 Moderator influence

As researchers we have to be aware of how we influence our subject or object of study, in the case of the Color table workshop, our influence started in the planning face and continued through the workshop itself and in the creation of the data we base our studies on. As researcher we have influenced the design process in many ways, starting with selection of workshop participants, in the design of cultural probes, through interviews, in the creation and selection of content, our participation as observers or moderators and in the technology and creation of the tangible user interface that is the core of the Color Table.

The moderator of the workshop plays an important part in the design process.

The moderator (or moderators) guide the participants through the different tasks, asks questions and interacts with the participants, guiding the participants through the different predefined topics / scenarios and taking the initiative to save designs, in an effort to provide forward momentum through the workshop day. The moderator assist the participants in finding suitable content from the content board, help the participants overcome technical challenges, like the sensitive token tracking system.

The moderator's most important task, in my opinion, is to ask the participants challenging questions in order to make the participants reflect on their design or explore difficult issues. Challenging the participants is a challenge in its self and requires expertise and experience when stakeholders are experts in their own domain.

I will not discuss how the selection of participants, the creation of cultural probes or the interviews that were done, since I was not directly involved in those processes, in addition I will not analyze the technology behind, and design decisions made during the creation of the Color Table.



## 2.7 Framing conditions

One of the important tasks in the preparations leading up to the workshop was the selection of viewpoints for the different panoramas. The viewpoints were selected during a tour of the Blindern station area and the University campus. The workshop team selected a set of locations and proceeded with the creation of the panoramic photos that would form the base for the final wall projected panoramas used in the workshop. An in-depth description of the intricacies of panorama creation can be found in the appendix.

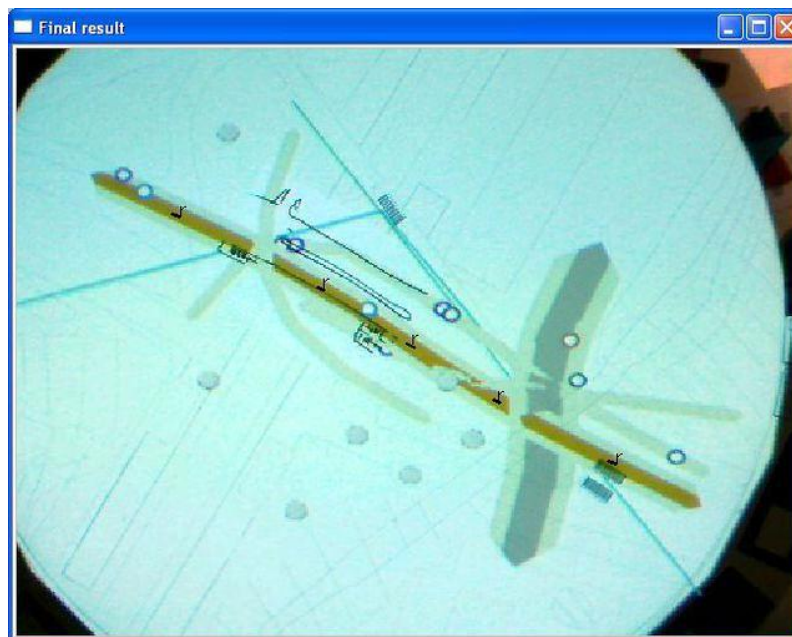
The panorama selection and editing provided the frame for which in the participants would work and create their design. Creating a panorama that would provide the participants with space for design, yet still provide the desired sense of realism and functionality was undoubtedly a challenge greater than I imagined. It was difficult to predict how well the different panoramas would function; with hindsight it is clear to me that some of the panoramas had a negative effect on the design process. Panorama P5, the Kindergarten, was the least used panorama during the workshop, time constraints and a misunderstanding on my behalf, resulted in a panorama that did not provide enough space for design. This, in addition to the imagined use of the panorama as a viewpoint for working on the connection between the station and the new informatics building, did not correlate with the actual use by participants, whose use focused on the station area design.

Panorama P4, the Research Park, was a source of frustration among the participants. The depth map, invisible to the participants, made placement of content difficult. The participants on day one were able, with extensive help from the moderators and workshop team, to produce interesting design ideas, but on day two the difficulties and a lack of interest made the participants quickly move back to the panoramas located around the station area.

Panorama P1 and its two versions was a result of debate and a difference of opinion among the two workshop teams, discussions took place regarding the level of realism of excluding the building at the station, the workshop team from Vienna wanted to provide the participants with as much space for design as possible and the Oslo team wanted to keep the building for the above mentioned reason. During day one the participants preferred the panorama without the building; it was a bit of a surprise since the workshop included participants that make their livelihood running a store on the ground floor. The participants on day two had as previously

mentioned, strong opinions on the level of realism, and preferred the panorama with the building. It would have been interesting to see what the participants on day two could have produced if they were forced to use the panorama without the building and if they were able to free themselves from the attachment to realism. P6 overlooking the station from the existing bridge was the most used panorama during day two and in that respect seemed to be successful at providing space for design, it was also the only panorama providing a view of the station platforms. It was however not optimal for discussing the new bridge proposal, this was due to the viewpoint itself being too close to the actual path of the new bridge and in combination with the fact that only one or two view/perspectives of the bridge available in the content leaving the participants to discuss the new bridge using only the map and flow function of the Color Table. A different viewpoint, for example, from the station platforms could have made a difference in placing the bridge and provide an eye height perspective unlike the more birds eye perspectives of panorama P1 and P6.

It was interesting to observe how BridgeDesigner broke through the framing constraints of available content and the limits of bridge placement possibilities by taking advantage of the tangibility of the Color Table. When the content did not include music suitable for accompanying the stage he had placed in the scene, he took out his phone located the music he preferred, started to play it and placed the phone on the table. Later during the discussion and redesigning of the bridge he placed a piece of paper onto the map and sketched out the bridge design.



**Picture 9**

Both these actions give the physical table a value in its self, beyond being a surface to place maps and tokens on it provides an arena for improvisation using tangible artifacts other than the ones provided. The physical and tangible aspects of the table made it easy to break the framing constraints, a task that probably would have been difficult, for example, in a computer generated 3D environment.

Staging the workshop in a TV studio and not outdoors on location like some of the previous Color Table workshops, remove the participants from the actual physical experience of being at the scene, what effect this had on the design process, apart from providing a warmer temperature working environment than freezing conditions of a Norwegian winter, is difficult to say, other than there were no complaints from the participants. It can however not be neglected that there was a separation from being on location and the mixed reality experience that the MR tent, used in other workshops, provides.

## 2.8 Technical

There are several technical problems with the Color Table during the workshop; it's difficult to pinpoint specific incidents that directly influence the design decisions. Technical problems might have influenced the time spent exploring the Research park area on day two, compared to the time spent on the same area during day one. This may account for the lack of design ideas, in addition to previously mentioned possibilities.

The technical problems were mainly problems with the token tracking system. The system tracks tokens based on color and during the workshop it locked on to shirtsleeves of similar color as the tokens, with the result that content stored in the system would pop up and disturb the participants in their work. Calibration of the system was also problematic; the tracking system was very sensitive to the color temperature and to the intensity of the lights in the TV studio.

## 3. Methodology

### 3.1 Methods of data

#### Multi modal analysis

I was fortunate to get an introductory lesson on how Ina Wagner and her team use multi modal analysis in their research, this was not directly applicable to my approach, but inspired me to create my own forms for registering events, track the placement of content, ideas and initiatives.

Early in my video analysis I focused on analyzing how the participants used the Color Table, using a spreadsheet I registered the use of tokens, content cards and panoramas. The illustration below shows excerpts from the spreadsheet.

Time code fixed cam	Time code mobile cam	Transcript	Description of events	Panorama	Changing viewpoint (pan)	Flow type	Flow token color (rectangular)	Token location	User	Content card	Token Color	Token location	User
11:14:28			CJ picks content card from the content board and places it on the table	P6						Content sheet 1, row4, col 2 - Bridge			CJ
11:15:36			AS changes position of purple token	P6						Content sheet 1, row4, col 2 - Bridge	Purple	Map	AS
11:24:12	11:23:53		HW place a flow card on the RFID reader	P1		Pedestrian	card assigned to orange		HW				
11:27:18			IW suggest the group set another flow the purple flow tokens	P1			Purple	in hand	IW				
11:38:00			SK minor adjustment to blue token	P1						Cafe	Blue	Map	SK

As I worked my way through the data it became more and more clear to me, that focusing solely on flow creation felt too restricting and that the material contained so much interesting data on the process of design as a whole.

## **Transcripts and text analysis**

After changing my field of interest and focusing on the lifecycle of ideas, there was a need for following the conversation between the participants. I needed to transcribe the video material. While I worked on my initial analysis of flows, Tone Bratteteig and fellow student Aga Skorupka transcribed about three hours of video from day one, I continued their work on day one and proceeded to transcribe day two. In the appendix of this thesis there is a narrated summary of the events of day one and the full transcript of day two.

Transcribing turned out to be a far more extensive endeavor than I had imagined.

Being a novice at transcribing it took me up to ten hours to transcribe one hour of video, towards the end of the process I managed to get this down to about six hours.

There were many factors that influenced the speed of transcription, first my ability to listen and write simultaneously, second was the sound quality of the recordings, there were also three sources of sound available, sound from the fixed camera, sound from the mobile camera and the sound from the overhead microphone.

To gather as much data as possible meant referencing all of these sources in order to follow, not only the main conversation at the table, but also the side conversations that took place, for example at the content board or conversations taking place beyond the selected audio source on the video, there were also gaps in the audio and video material from the switching of tapes etc. These gaps in the data are noted in the transcripts.

To help create a richer description of the events I linked the transcript with screen grabs from the videos and still photos, thereby strengthening the cross-referencing and reducing the need to constantly reference the video material throughout my analysis (Crang, 2007).

## 3.2 Methods of analysis

### Grounded theory? A reflective conversation with the data

With all the data gathered, how does one proceed?

My analysis of the transcripts can by no means be classified as a Grounded Theory analysis, I have however tried to conceptualize and classify interaction and actions in to meaningful categories based on the data, but not to the extent demanded of a full Grounded Theory analysis (Glasser).

I cannot claim that my final analysis started without any preconceived notions about the data since I already had started on an analysis with a specific focus. It is however through my immersion into the data that my concepts and categories have evolved.

When doing a Grounded Theory analysis the researcher engage in coding of the data, codes are created and applied to phenomena the researcher identifies in the data material, through iterations the codes are tightened up and categories created (Crang, 2007).

Throughout my analysis I have applied my own set of codes to identify different phenomena, but in my effort to analyze and follow ideas over the course of time I have applied color coding to visually and cognitively keep track of each participant's actions and interactions. Each participant have been assigned a color which I have used when registering activities in spreadsheets, applied to the conversations in the transcripts and throughout my efforts to visualize the life cycle of ideas which will be presented in this thesis.

The figure below show one of the spreadsheets used to track the participants ideas and statements. When a participant express an idea a '1' is placed in the participants column at the approximate time code, if an idea is a product of two participants each participant is given a '1' in their respective individual column. If the idea is an iteration of a previous idea a reference to the cell in which it first occurred is noted in the "Owner/originator of the idea" as well as the color code of the originator.

If one participant opposes or blocks a presented idea, a '0' or 'x' is placed in that participant's column/cell. In addition to tracking the ideas and interactions among the participants the spreadsheet also contains columns registering ideas put forward by the moderator and other

workshop team members, in addition to the columns visible in the figure there are columns for keeping track of the different representations created (content used) and for keeping track of whether a row in the spreadsheet contains a statement or an idea, this is for future work on visualizing the design process.

Having started an analysis focusing the creation of flows, which are created by positioning rectangular flow tokens at the desired start and end point, I naturally transitioned to registering other content added to the ColorTable. Early in my analysis I observed a phenomenon which I named Stickiness, content added to the table was never removed. I was really intrigued by this phenomenon, but unable to determine the reason for this at the time. Building on this observation I quickly identified which content was present at the end of the workshop and from my spreadsheets I was able to identify the participants contributing to these representations. There were two distinct patterns, representation created by a group of participants and representations created by one individual. I quickly named the first pattern Design Ideas and the second pattern I initially named “Individual initiatives” which later became “Non-Participatory ideas”. Architect’s effort to block other participants’ ideas was also one of the earliest patterns I noticed, partially because I vividly remembered these episodes from my observations, the concept of alliances on the other hand developed later. From my spreadsheets I could see that some ideas never reached the table and that they were not actively blocked, this required more research before I could conceptualize it.



Time code	IW	TB	Max	MICH	USA	UniversalAccess	Bicyclist	BridgeDesigner	LocalResident	Architect	SoundResearcher	PublicTransport	BP	Owner/originator of the Idea	IDEA Discription
10:56:22															
11:10:00						1				0					" maybe people with disabilities would like to park close to
11:18:00						1				1		0			Architect brings up that there is nothing that says "welcom
						1				1					UniversalAccess says that they could have some sort of in
							1						L12		Bicyclist suggests that they could work on a welcome sign
						1									
						1		1	0						BridgeDesigner - "maybe you want to make a 3D model in
						1		1					J20		UniversalAccess "I think so, for blind people, even blind c
						1									UniversalAccess - "In general I think sound is very little use
						1									UniversalAccess ask BridgeDesigner about the angle of the
															BridgeDesigner explains in more detail how people will a
						1		1		1					UniversalAccess believes that the path from Blindern stat
															Architect - "There will be a lot of water" BridgeDesigner -
							1			1					-"if you see the work area (in front of the new informatics
							1	1							Architect - "It will be two PublicTransportms I think"
							1	1					L32		BridgeDesigner - "There is a PublicTransportm, should we
11:41:09							1								Bicyclist says "so, welcome"
11:43:15						1	x								UniversalAccess - "so if we think about the information bu
	1						1								IW - "do you want to associate a sound with this?" Bicyclist
							1	1	1						. IW - "we have urArchitectn park, walking talking" LocalRe
															LocalResident - "do you want it to be a new thing or to rep

In the following chapters I will present my findings from day two of the Color Table workshop and my analysis of these findings.

Presenting the data and the analysis in the same chapter differs from the “traditional” structure of a master thesis; combining the two in the same chapter is done because some of the excerpts are multipage excerpts and it is beneficial to the understanding of the events and to the readability to analyze the findings immediately.

I will, based on these findings, try to analyze the lifecycle of ideas and discuss the different processes and interactions that lead to the creation of representations on/with the Color Table.

I have decided to focus my analysis on day two of the workshop, but I will on occasion make references to day one for comparison reasons. The decision to focus on day two is based on the composition of the participants, this does not however mean that day one is of lesser interest and if one reads the summary from day one found in the appendix, I will state that the participants on day one can probably be characterized as more creative, less bound by the constraints of realism; they were more experimental and produced a larger number of representations. So why not base my analysis day one? The primary reason for not selecting day one is the lack of stakeholders, the participants on day one were mostly users of the area and not directly involved in the regulation and planning of the area. The two shop owners participating on day one were stakeholders, which business could be impacted by a new design of the station area if it made access to their store less convenient, but they would have limited or no influence on the design process.

Day two included a different set of stakeholders, stakeholders with more invested in the design of the new Blindern station area, especially participants BridgeDesigner and Architect.

## **Visualization as an analytical method**

### **Analysis**

This analysis is a two level analysis first an interwoven descriptive narrative analysis of the events and processes that took place followed by an visual analysis using a method for visualizing that will be outlined and explained in chapter 9.1

## **Narrative analysis - The faith of Design ideas**

In the following narrative analysis I will present the conceptualized categories derived from the use of “Grounded Theory” analysis on the data material.

The analysis will present key factors, elements and events that influence the faith of Design ideas, what must be describes as the design process.

Schön & Wiggins describes the design process as sequence of moves based on the concept of seeing before and after each move. The concept of seeing-moving-seeing forms the basis for my analysis.

A key concept in this analysis is the Design Idea, in chapter 4 I will present and analyze what I think constitutes and characterize a Design Idea. The analysis will focus on the interaction between participants and the choices they make as they come together to discuss, explore and design the new Blindern station area.

Chapter 5 presents a pattern different to the Design Ideas, I have chosen to name it “Non-Participatory Ideas” mostly because it differs from the core characteristic of the Design Idea. It is by no means meant to characterize ideas as less significant; the difference is in how they come to life.

Chapter 6 analyzes the mechanics of blocking ideas, preventing ideas from becoming representations and part of the final design as well as analyzing the impact of alliances on the design specification.

In Chapter 7 I analyze why Design Ideas die, focusing on the pattern of abandoning ones ideas. Chapter 8 focuses on the pattern of Redesign, an example of true Participatory Design in practice.

In general throughout this analysis, conceptualized categories will be supported by excerpts from the transcript. Each category is presented with a short descriptive introduction of what the reader should pay attention to. Following the excerpt, a short summary will sum up the events and dialogue that took place and how they relate to the conceptualized category.

At the end of each chapter there is summary of the findings relating to each category.

## 4. Design Ideas

The process of gathering the data for this thesis, observing the participants during the workshop, analyzing the video material, registering user action and interactions, transcribing and analyzing the transcript, was one of emersion, trying to develop a deep and intimate knowledge of the material. Working through the material multiple times, applying and seeing the data through the eyes of different theories, a set of patterns began to emerge.

The unit for this data presentation and analysis is the concept of “moves”. When using the term “move” or “moves” I refer to both the writings of Schön & Wiggins, where moves are decisions followed by reflectivity in a design process, and to Langley et al., where “moves” are decisions, interconnected links, in an Issue Network or elements in an Issue Stream.

Langley et al. emphasizes the difficulty of using decision or “move” as a primary unit of analysis, decisions are as they say *“difficult to pin down in practice”* and that *“the attempt to do so may distort our perception of how action really occurs..”*. Langley et al. continues to write that the analysis *“is further aggravated by another phenomenon, sometimes acknowledge but rarely explicitly investigated: that decisions interact with one another.”*.

Moves are decisions, all moves end with a choice, the choice to either choose or discard an option. Decisions form patterns and it was these patterns that slowly emerged in my analysis of the data. In this chapter I will present the a set of patterns that I have conceptualized and named “Design Ideas”

Design Ideas or a Design Idea is as we will see, ultimately an iterative pattern of “moves”, with a set of contributing processes, processes that expand and builds out the ideas, processes of contextualization and placement, and processes that changes or add properties all to create and develop a representation.

I will present examples of these processes throughout this chapter and with an analysis and discussion in section 4.5.

I consider the Design Idea and its processes as Participatory in their nature, in the sense that multiple actors participate, developed and nurture the Design Ideas in a collaborative way, with a broad and mutual understanding and acceptance among the participants.

All Design Ideas have representations and these representations are always present in the final design specification.

The representations can, as we will see in this chapter, be either physical representations, like tokens on the ColorTable, or verbal representations, present in conversation only.

Let's take a look at the first characteristic "move" which define Design Ideas.

## **4.1 From a "non-place" to a welcoming meeting point.**

The first indication that we are looking at a design idea, is the pattern or process of acceptance and adoption, what exactly does this mean?

A design idea is as previously mentioned a collaborative and participatory effort, thus requiring a broad foundation among the participants. A broad foundation means that the idea is agreed upon and that a large part of the participants take ownership and bring the idea forward through to the final design specification. The "move" of adoption of an idea is a good example of this, in this chapter we will see design ideas driven forward by others than the originators, a tell-tale sign of a design idea.

In this section we join the participants as they familiarize them self with the Color Table, analyze the current situation and discuss their vision for the new station area.

Based on the presence of a preexisting bridge and station design, by BridgeDesigner, which most of the participants are familiar with, it is suitable to start with the BridgeDesigner analysis of the present situation and his vision for the new station area.

Building on the BridgeDesigner's analysis we will see the participants continue to analyze the shortcomings of the present situation and bring forward their visions and ideas to improve the situation and the user experience of the station area.

The actors to pay attention to in following excerpt are BridgeDesigner, Architect, UniversalAccess and Bicyclist.

*BridgeDesigner tells the other participants that there will be a large open area under the bridge which they have intended to become a meeting point. BridgeDesigner says he has observed that the area is "non-place", you get off the train and you disappear in to the.., very quickly, and in the afternoon people come back and disappear on the train very quickly, since the trains are so frequent now that when you go to town you only have two or three minutes between the trains, so it's very much a "non-place, it becomes sort of a traffic junction, so how can one make it more of a meeting point, that I think is interesting"*

*Architect brings up that there is nothing that says "welcome to Blindern, welcome to the University" at the station and that this place could do that.*

*PublicTransport points out that that information is actually there, pointing to a location on the map.*

*PublicTransport suggest that the sign could be moved to a better location*



**Picture 10**

*UniversalAccess says that they could have some sort of information center, where people could get a map and find out where to go.*

*Bicyclist suggests that they could work on a welcome sign "welcome to all", and that this could be one of the topics, making the area welcoming for all users, people in wheelchairs, pedestrians and bicycles which he is interested in. "Welcome to bike around Blindern, welcome with your wheelchair or your trolley"*

What did we witness in this short excerpt?

BridgeDesigner presented his analysis of the station area and his idea of transforming the area from a “non-place” to a meeting point.

Architect addressed his concern that here is nothing welcoming people to the University. We see UniversalAccess adding to BridgeDesigner's initial idea and with PublicTransport's input she proposes an information center.

Bicyclist takes Architect's concern and idea of creating something that would welcome people to the University to heart, and suggests that they all work on creating a welcoming sign.

One might ask why this excerpt is important, the excerpt illustrates key characteristics and the first process of "moves" involved in the Design Ideas concept:

1. The acceptance of the idea by other participants
2. The adoption of an idea by building upon it / adding to it

The acceptance of an idea by the other participants form the base on which our first process of "moves" begin, the process of building out and adding to an idea / representation.

The process of building out / adding to is as we shall see a key iterative element in Design Ideas.

In the following three sections we are going to follow, the BridgeDesigner's and Architect's, original ideas evolve through several iterations being driven forward by UniversalAccess and Bicyclist.

## **4.2 Merging initiatives**

Just as Schön describe the design process, a Design Idea evolves through a number of moves. One of these moves is the pattern I have chosen to call, merging initiatives.

Each of these initiatives can come from one or more participants. In this chapter we will see that Bicyclist and UniversalAccess have individually adopted the ideas put forward by Architect and BridgeDesigner and that they merge to one entity, one representation.

In the following excerpt, after the initial analysis, the participants explore the station area and create their first representations, applying their ideas/visions to the station area.

We will see Bicyclist and UniversalAccess working together to establish the information center and welcoming area. The participants are also coming to terms with the relationship between the token and what is shown on screen and the perceived mismatch between the map

and the objects position and scale on-screen. To inform the reader; there are some gaps in the transcript material in this section. The key point of this excerpt is to observe the continued merger of the information center and welcoming area visions into a single representation.

*Bicyclist has selected a content card from the whiteboard and he is looking for a token, LocalResident can be seen standing by the whiteboard looking at the content.*

*Bicyclist places a green triangular token on the map and the content card on the green RFID reader. BridgeDesigner and UniversalAccess are discussing something amongst them self, BridgeDesigner walks to the screen and says "so this is the road up to the University here"*



*Picture 11*

*The content that Bicyclist has placed is visible in the lower left corner.*

*IW - "it's cut off"*

*Bicyclist moves the token on the map to better position his content, it is problematic to position it correctly and*

*BridgeDesigner points out that there is a discrepancy between the map and panorama.*

*BridgeDesigner asks if the object is a news stand.*





*Picture 12 - News stand*

*11:43:53*

*13 seconds missing on tape*

*11:44:06*



*Picture 13*

*IW - "do you want to make it a little bigger?"*

*Bicyclist - "yes!" Bicyclist leans over to the left to find the increase scale card"*

*IW - "so this has already been registered" and she returns the news stand content card to the whiteboard.*

*Bicyclist has placed the scale increase card on the reader and scales the object to ten meters.*

*IW - "do you want to associate a sound with this?"*

*Bicyclist - "maybe the café sound you were talking about?"*

*UniversalAccess - "yeah"*

*BridgeDesigner - "café, news agent, we have the news agent sound ..., newspaper office sound"*

*Bicyclist joins LocalResident and IW by the whiteboard.*

*IW - "we have urban park, walking talking"*

*LocalResident hand Bicyclist a content card, Bicyclist - "let's try that"*

*Bicyclist places the card on the reader*



***Picture 14 - Bicyclist placing content card on RFID reader***

*UniversalAccess - "I would like it a bit more further right" UniversalAccess adjust the position of the green token,*

*Bicyclist - "yes, please"*



*Picture 15 UniversalAccess adjusting the green token*

*IW - "has the sound been registered GAMMON?" GAMMON - "yes, but it's quite far away so.."*

*The news stand disappears UniversalAccess has moved the token outside the tracking area.*

*MW - "but you can later go closer to the sound and just listen to it with the sound token"*

We have just seen UniversalAccess and Bicyclist merge two ideas and create a representation for the information center / meeting point/ welcoming area.

The collaboration between Bicyclist and UniversalAccess will as we will see become a creative alliance as the workshop progress.

The initial representation went through an iteration when environmental sound was added in a collaborative effort by UniversalAccess, BridgeDesigner, Bicyclist and LocalResident, aided by the moderator.

The merging of initiatives creates a representation which has the support of all participants, a natural alliance builder.

In their article, Langley et al., describe Merging as a Precursive Linkage in an Issue Network, where “A set of unrelated issues come to be seen as a single one and so are decided upon symbiotically”. I will not adopt this as a description of “Merging initiatives” as my conceptualization is more in line with what Langley et al., describe as “Contextual linkages”

between Issue Streams: *"issues are linked because they bathe within the same ... context"*, Merging Initiatives is then in my conceptualization, the move to merge ideas within the same contextual space / context.

### 4.3 Repurposing the existing building

The next iteration of the original idea comes in the way of repurposing the building next to the station. The building in question is designed by a well-known Norwegian architect and is one of many functionalistic buildings in the Blindern / Vindern area. The participants discuss a possible new use for the building, moving the information center and establishing a welcoming area. Moving the information center and welcoming area to this building is the next "move" on this idea. We rejoin the participants as they discuss the station building;

*LocalResident - "do you want it to be a new thing or to represent the building that is actually there?"*

*BridgeDesigner - "the building with a new function in it maybe"*

*LocalResident - "yeah, because the building is actually there and I don't we will be allowed to move it"*

*UniversalAccess - "so the question is whether ah.. it's a, you should kind a think of a new information area inside or, or"*

*Bicyclist - "yeah, I think that's a, to make a welcome area"*

*LocalResident - "so a new one"*

*UniversalAccess - "a new one?"*

*Bicyclist and BridgeDesigner agree with a hum.*

*UniversalAccess - "then maybe it would be better to have it closer"*

*Bicyclist - "cause you would have more and more open spaces ... this is a non-space here, in between here."*

*UniversalAccess - "should we try to put this closer then"*

*Bicyclist - "yeah"*

*UniversalAccess moves the token.*



**Picture 16**

*IW - "that's quite remarkable in size"*

*BridgeDesigner - "it's actually just under the bridge"*

*UniversalAccess adjusts the position of the token again.*

*BridgeDesigner - "can we get the bridge in to?"*

*IW - "we can at some point of course get the bridge in too"*

There were a couple of moves in this excerpt.

The information center idea has now transformed in to utilizing the building as the information center, a contextual/placement move, moving the information center away from the outdoor area at the station to an indoors location. The building itself is an iterative representation, which the participants return to throughout the workshop, adding additional function; it is for example later on proposed as a café with outdoor and indoor seating.

Towards the end of this excerpt we see UniversalAccess suggest that they move the information center out in to the open area in front of the building. When she tries to reposition the token the representation on the screen increases in size as a result of coming closer or too close to the view point and BridgeDesigner comments that *"it's actually just under the bridge"*. UniversalAccess's move of the token representing the information center and the unintended result as the information center came to close to the view point may have left an imprint in the back of participants minds as we shall see in the next section when we return to the conversation approximately three hours later.

UniversalAccess's action to move the information center out of the building is another placement move.

## 4.4 Moving the information center

When SoundResearcher returns to the workshop, after attending to another engagement, the conversation turns to the use of sound. This inspires a multitude of suggestion relating to sound, but also the use of lights and use of the area under the bridge as information centers, building on previous ideas. This excerpt is a rather lengthy excerpt but shows how the participants explore the impact of sound and its effect on the user experience at the station. The next "move" I would like to bring attention to starts on line 28, (indicated by an\*), of this excerpt, when UniversalAccess brings the participants back to discussing the information / welcoming area.

*SoundResearcher - "it's quite difficult to get good noise-canceling, you could do it with headphones but other kinds of noise canceling is very difficult, so I think there it's probably more in terms of the construction materials and dampening I guess, not to have too much rumbling things, like for example the bridge that is now is rumbling a lot so"*

*BridgeDesigner - "maybe inside the platform sides"*

*SoundResearcher - "you can have some kind of more damped, so it kind of"*

*BridgeDesigner - "it might help"*

*Architect - "you know the noise canceling, you call it, within the exclusive cars was a problem, because you were too far from the outdoors or wherever you were driving"*

*BridgeDesigner - "you don't hear the ambulance"*

*Architect - "you don't, your visual impact is not the only thing you communicate with so you have sounds and kind of the your body self, how you feel the outside and speedboats don't have any suspension they have to feel the position in the water because your eye is to slow because you are moving like that, you need to have some impact to all your body, don't cover the outside"*

*UniversalAccess - "but again it depends on the situation because if you are waiting and you have got the information you need and you are just waiting"*

*Architect - "but don't you expect to hear the train coming in?, if it's zero sound wouldn't that*

*be kind of"*

*SoundResearcher - "well I think zero sound is probably, hehe, that's not going to happen here anyway"*

*LocalResident - "but zero sound is awful"*

*UniversalAccess - "it's more or less of course"*

*SoundResearcher - "but you can, I mean you can shield it a bit if you have kind of an area where it's more closed or damped or whatever"*

*Architect - "acoustic work"*

*SoundResearcher - "yeah, that's more an acoustic thing than kind of digital noise canceling"*

*\* UniversalAccess - "I think when, if you go to the information welcome area then you would probably like to have a more quiet place then, and you know"*

*Architect - "but you know our neighbors will complain about all, when we want to put in some information here and we want good lights above the traffic crossing, then complaining about noise in any aspect, they don't want too much light because that light go in to their living rooms, they don't want too much noise, they want to have a quiet place here, and then we have to find an acceptable level of how the area works to the neighbors"*

*UniversalAccess - "so I was thinking of some kind of information station where you can go inside and maybe it could be more light inside and you could have noise inside, or not noise but hehe, information"*

*SoundResearcher - "beautiful noise"*

*UniversalAccess - "sound information inside and you would need some kind of tactile information around this around this information booth or what you could call it and place it on each side of the..."*

*BridgeDesigner - "I think under the bridge is a good place, use under the bridge"*

*Architect - "but you have to see it"*

*IW - "would you like to place it?"*

*LocalResident - "under the bridge on both sides"*

*BridgeDesigner - "because it's usually a sad place where it's dark and dirty and it is full of rubbish and so under the bridge is., if you have a lot of light under the bridge and put information there, then you will, you will get this effect as it's, because it's seven meters wide the seat"*

*LocalResident - "then it's possible to screen the light from scattering too much towards the neighbors as well"*

*BridgeDesigner - "yeah"*

*SoundResearcher - "under the bridge will actually be"*

*BridgeDesigner - "you could directed the light down on the information"*

*LocalResident - "and if you need some screening it's possible to make it"*

*UniversalAccess - "you could have dynamic information inside with some screens and you could have more ordinary information with the maps and so on, so maybe you could plug in your or have some Bluetooth communication with your Ipod or mobile phone whatever"*

*Architect - "I think when you have come to the station it's too late to get the information, you need to get the information having to your devices long before, because there is a reason coming here and I think that's kind of program, you are programmed before you get to the station, the station is just a place to refine your knowledge"*

*BridgeDesigner - "orientation"*

*UniversalAccess - "yeah"*

*SoundResearcher - "but not necessarily though, because you might have cases for example coming to the University in the morning and the student might not actually have something to do at that time, it might be, just sit and read or whatever and then if the student gets information about an interesting lecture or whatever happening that day you. could be guided then, you could decide to go on that thing right in the moment you get to the station"*

*UniversalAccess - "happenings of the day you know, lecture in sound science or hehe..."*

*Architect - "that is computer or when close to the internet, you would know that any place in the town, any place in the world, my side, my interests, my lectures, my programs"*

*UniversalAccess - "then it is pulled, if it's here it's pushed, you know"*

*Architect - "but how many students can you serve, if you put it in here"*

*SoundResearcher - "imagine if you put two hundred meters of screens here you could have quite a lot of things happening in those two-hundred meters, there are not that many open lectures in a day here, I mean say,*

What took place in the conversation we just read? A large part of the conversation is about the use and impact of sound on the station, but I want to bring attention to UniversalAccess and how she links the use of sound to information and then to the information center. She suggest establishing information stations on both sides of the station which BridgeDesigner immediately picks up on and suggest that they should use the area under the bridge, a move supported by LocalResident. The information center idea is then expanded by suggestions from both UniversalAccess and SoundResearcher. This excerpt contains two categories of



moves, a placement move, moving the information center to the area under the bridge, on both sides of the station, and several moves adding new functionality for example dynamic information, Bluetooth communication and the ability to push information to mobile devices.

## 4.5 Characteristics of design ideas

There are as we have seen multiple iterative processes patterns at play in the creation of Design Ideas.

To summarize this I have selected a few examples from the excerpts above.

In 4.1 BridgeDesigner explains his analysis and vision for the new station area, trying to transform it from a “non-place” and into a meeting point. Architect emphasizes the fact *“that there is nothing that says “welcome to Blindern, welcome to the University” at the station and that this place could do that.”* UniversalAccess says that they could have some sort of information center, where people could get a map and find out where to go. Bicyclist suggests that they could work on a welcoming sign *“welcome to all”... Making the area welcoming for all users, people in wheelchairs, pedestrians and bicycles.*

The move by UniversalAccess and Bicyclist to adopt BridgeDesigner’s and Architect’s idea and bring it forward is the defining move in the Design Idea pattern, the prerequisite. With that identified we can move on to the different process that takes place within the Design Ideas concept. First we will take a look at the process of expanding or building out an idea. The process of expanding or building out an idea is in the case of the information center / welcoming area idea an iterative process, what do I mean by saying that the process is iterative? The process is iterative because the participants return to expanding the idea many times in the course of the workshop. Each time they expand the idea it is either a single expanding move or a sequence of expanding moves. There are many iterative expanding individual moves during the workshop and I will not extract and discuss them all to prove a point, but rather show that moves can be recurring.

In 4.4 we rejoined the participants in the closing moments of the workshop; this is a good illustration of a sequential set of moves that expand the Design Ideas.

The participants discuss the use and impact of sound when UniversalAccess brings the conversation back to the “information center” suggesting that the information center should

be a quieter place with better lighting, tactile information, maps and dynamic information available:

#### **Expanding / building out an idea 1**

*UniversalAccess - "so I was thinking of some kind of information station where you can go inside and maybe it could be more light inside and you could have noise inside, or not noise but hehe, information" ....*

#### **Expanding / building out an idea 2**

*UniversalAccess - "sound information inside and you would need some kind of tactile information around this around this information booth or what you could call it and place it on each side of the..." ...*

#### **Expanding / building out an idea 3**

*UniversalAccess - "you could have dynamic information inside with some screens and you could have more ordinary information with the maps and so on, so maybe you could plug in your or have some Bluetooth communication with your Ipod or mobile phone*

The examples above are all examples of the process of building upon or expanding an existing idea or representation. The process builds out the representation in sequential steps and is as previously said recurring due to the fact that the participants return to the issue several times during the workshop. As we have seen in 4.1 the participants start out build upon BridgeDesigner's vision for the station area before they create their own physical information center / welcoming area representation. Approximately three hours later they revisit the idea and UniversalAccess suggest a set of new functions based on the discussions that have taken place, expanding the information center idea further as seen in the examples.

The expansion of ideas is mostly a verbal activity, a verbal expansion of both spoken / cognitive and physical representations.

The process of expanding and building out ideas is not the only iterative process present in the data material in relation to the creation of Design Ideas.

The second iterative process is one of contextualizing and physical placement.

In 4.2 the participants establish the physical representation of the information center by placing a token with the representation on the ColorTable. The move of establishing this representation, shown in figure **Move – Contextual / placement 1**, is a contextualizing move or a move on placement.

### **Move - Contextual / placement 1**

*Bicyclist has selected a content card from the whiteboard and he is looking for a token, LocalResident can be seen standing by the whiteboard looking at the content.*

*Bicyclist places a green triangular token on the map and the content card on the green RFID reader. BridgeDesigner and UniversalAccess are discussing something amongst them self, BridgeDesigner walks to the screen and says "so this is the road up to the University here"*



**Picture 17**

*The content that Bicyclist has placed is visible in the lower left corner.*

The information center changes location several times during the workshop, some moves come in rapid succession and some moves are separated by hours.

Just as the process of expanding and building out, the process of contextualizing and placement contain both individual moves and moves in sequence.

### **Move - Contextual / placement 2**

*Bicyclist moves the token on the map to better position his content, it is problematic to position it correctly and*

### **Move - Contextual / placement 3**

*UniversalAccess -"I would like it a bit more further right" UniversalAccess adjust the position of the green token,  
Bicyclist -"yes, please"*

The participants decision to move the information center to the station building in section 4.3, shown in figure **Move –Contextual / placement 4**, immediately followed by UniversalAccess move to place the information center just outside the building, **Move – Contextual / placement 5**, I categorize as an example of sequential moves within an iterative process since the participants later once again returns to the issue of location and make an individual move to place the information center under the station bridge as seen in chapter 4.4, based on this and the previous example, iterative means that the participants return to the decision as the issue is still unresolved.

#### Move - Contextual / placement 4

*LocalResident - "do you want it to be a new thing or to represent the building that is actually there?"*

*BridgeDesigner - "the building with a new function in it maybe"*

*LocalResident - "yeah, because the building is actually there and I don't we will be allowed to move it"*

*UniversalAccess - "so the question is whether ah.. it's a, you should kind a think of a new information area inside or, or"*

*Bicyclist - "yeah, I think that's a, to make a welcome area"*

#### Move - Contextual / placement 5

*UniversalAccess - "then maybe it would be better to have it closer"*

*Bicyclist - "cause you would have more and more open spaces ... this is a none space here, in between here."*

*UniversalAccess - "should we try to put this closer then"*

*IW - "that's quite remarkable in size"*

*BridgeDesigner - "it's actually just under the bridge"*

*UniversalAccess adjusts the position of the token again.*

It is important to keep in mind when discussing these processes that contextualizing, as a process, has a more general application whereas the process of physical placement is in this case specific to the ColorTable.

Intertwined with the placement moves we find an example of a third category of moves, change of properties. Change of properties refers to the modification of physical

representations on the ColorTable such as scale or addition of sound. These moves could be classified as Expanding / building out moves, but I have chosen to place them in a separate category since they operate on the physical properties of the representations and not on the idea. Change of properties could possibly also be classified as a sub-category of Expanding / building out.

### **Move - change of properties 1**

*IW - "do you want to make it a little bigger?"*

*Bicyclist - "yes!" Bicyclist leans over to the left to find the increase scale card"*

*IW - "so this has already been registered" and she returns the news stand content card to the whiteboard.*

*Bicyclist has placed the scale increase card on the reader and scales the object to ten meters.*

### **Move - change of properties 2**

*IW - "do you want to associate a sound with this?"*

*Bicyclist - "maybe the café sound you were talking about?"*

*UniversalAccess - "yeah"*

*BridgeDesigner - "café, news agent, we have the news agent sound ..., newspaper office sound"*

*Bicyclist joins LocalResident and IW by the whiteboard.*

*IW - "we have urban park, walking talking"*

*LocalResident hand Bicyclist a content card, Bicyclist - "let's try that"*

*Bicyclist places the card on the reader*

The process of changing properties, have the same iterative properties as the other categories of moves.

The iterative patterns with many moves, individual or in sequence, in several processes is in my mind very similar to Schön's description of the design process, where each move, whether is contextual, placement or change of properties is a result of a reflective conversation, a decision based on seeing the implications and effect of the previous move not only in one domain (process) but in several other domains.

Schön writes that *“When we design, we deal with many domains and many qualities within domains; our moves produce important consequences in more than one domain, In the extreme case, a move informed by an intention formulated within one domain has consequences in all other domains. Because of our limited information processing capacity, we cannot in advance of making a particular move consider all consequence and qualities we may eventually consider relevant to its evaluation.”*

But not all representations are design ideas.

## 5. “Non-Participatory ideas” – individual initiative

My definition of a Design Idea as a Participatory endeavor, where the idea is driven forward by others than the originator through a series of iterative moves, contextual or placement, and where its representation is part of the final design specification excludes a number of ideas and representations discussed and presented during the workshop.

Several ideas were only voiced as verbal representations, some representations were ephemeral, only present in conversation for a short period of time, while others form the base for the final vision, but are not visible as physical representations on the ColorTable itself. Some ideas are “killed” through a process of blocking which will be discussed in chapter 6 other ideas die because they become irrelevant as participants surrender and abandon their own ideas in preference for stakeholder ideas as we will see in chapter 7, other ideas are “overruled” (chapter 8) and some ideas fade away and die for reasons discussed in chapter 10, the common denominator for these ideas is the lack of visibility or presence in the design result.

Just as chapter 4, this chapter focuses on physical representations which are part of the final design specification.

In addition to the Participatory Design Ideas there was another process of moves which produced several physical representations on the ColorTable.

These representations were not born through an iterative and cooperative process like design ideas, they were created through individual initiative.

In my analysis I needed a term for separating ideas, brought forward by individual participants, that ended up as physical representations and ideas put forward by individuals through conversation only. I named these ideas with physical representations “non-design ideas” in lack of a better term.

A more descriptive name, which would distinctively separate these ideas from the Participatory Design Ideas, would be to call them “Non-Participatory ideas”, which is the term I will continue to use throughout this analysis.

Each workshop day was separated into several sessions, starting with an instructional session



followed by several design sessions separated by coffee breaks or a lunch break which formed natural phases in the design process. Just as there were different phases in the design process there were different phases to individual initiative; in the instructional phase participants explored the tables function with limited participation of others, but as the workshop day progress through its phases there were several representations added to the table through individual initiatives.

I have selected a set of excerpts showing these individual initiatives at different stages during the workshop.

The following excerpts show four examples of individual initiative. 5.1 show BridgeDesigner adding a café to the station area; this is in an example from an early phase of the workshop, (shown by his inexperience with assigning properties to the tokens using the barcode reader). In 5.2 we witness the only contested individual initiative that later in 5.4 becomes a representation which then goes uncontested and becomes a part of the final design specification. In section 5.3 and initiative from BridgeDesigner break the frame put in place by the workshop team. This initiative illustrates both the limitation and possibility for creativity with the Color Table, but that is a topic for the discussion later on.

## 5.1 The first initiative

The first individual initiative is by BridgeDesigner and comes during the familiarization phase, the workings of the Color Table have not yet been mastered and the participants are dependent on help from the moderator and workshop team members.

### Move - Contextual / placement

*BridgeDesigner picks up the content card representing a cafe and the content card with the sound of a newspaper (office??) stand. He places them on the RFID readers expecting to assign both values at once IW explains that this is not possible; it must be done one card at a time, but first each token needs to be tracked. MICHI helps BridgeDesigner out with the sound card. The cafe content card is registered but the participants can't see the cafe in the panorama.*

The first individual initiative is in itself is not that significant in the overall picture, it comes at an early stage and as we will see through the following sub chapters there are more interesting individual actions to come. I have elected to include it as an example of an individual initiative that produces a representation, by my own definition it should be classified as a Non-Participatory idea, but since it comes to “life” during the familiarization phase, I choose to leave it as an example of the above mentioned. Let’s move on to more significant examples of individual initiatives and Non-Participatory ideas.

## 5.2 The 3D model map

The following dialogue sets the stage for another representation created by BridgeDesigner. The participants discuss navigation issues around the Blindern area and the need for signs. BridgeDesigner proposes a 3D model map to help visitors find their bearings and guide them to their destinations. LocalResident questions BridgeDesigner’s ideas and proposes something “more childish”.

*UniversalAccess says there is no sign that tells you which way is to the center or up to the forest (referring to the direction of the trains).*

*BridgeDesigner - "maybe you want to make a 3D model in different positions so you can actually see it oriented in the right way , "you are here", because if you have it up on the wall you have problem knowing what is where, because you don't really know where is north and if the map is north"*

*LocalResident - "I would actually prefer something a lot more childish, if I started here and then I went there and I found a new map, then I could see how I had moved from here to there so I started with a red spot and I got a green spot, then I could say "am I actually trying to approach the correct direction by going this way", that would be very easy for me to interpret.. I'm not really good at reading maps, and I know a lot of people that have no idea of reading maps, so more visualizing.."*

*BridgeDesigner - "This is why I mean sort of a 3D model.."*

*LocalResident - " you think that is easier?"*

*BridgeDesigner - "you could also have a sign with the name or a color pointing exactly where.."*

*LocalResident- "You really think it helps with 3D?"*

*BridgeDesigner - "Yeah"*

*UniversalAccess "I think so, for blind people, even blind could feel the 3D model"*

*BridgeDesigner - "you need different types of representations, because everything we make a representation if it's a sign, words, sounds (CHECK REST OF THIS).... also a model is a representation of the real"*

Why do I classify BridgeDesigner's 3D model idea as an individual initiative?

In contrast to the idea of a meeting place and information center, this has limited support from the other participants and is even questioned by LocalResident.

Unlike in 5.1 there is no physical representation created right away, it is at its current state a vision, part operative image, as described by Bratteteig & Stolterman, based on the perceived need for navigational aids at the station and campus area, but as we shall see later on, transitions in to a non-design idea when BridgeDesigner adds his 3D model idea to the final design by sketching it on the sketcher and reading it with the barcode reader.

For future reference it is interesting to note that this is the only contested Non-Participatory idea. Its validity and usefulness is questioned by LocalResident when BridgeDesigner first vocalizes his idea unlike all other Non-Participatory ideas which are accepted as they emerge and accepted as representation in the final design.

### **5.3 Breaking the frame, circumventing the boundaries of content limitation**

The following excerpt documents one of the most interesting individual initiatives during the workshop, it is interesting not only as an example of an individual initiative but how a participant broke through the boundaries of content limitation by building out the idea or adding new properties through the use of other artifacts than those that were provided to them, adding value to the tangible tabletop of the ColorTable.

We join the participants as they are working on designing the area in front of the building, trying to make it in to an area where people can meet. The participants have, as we can see in the picture below, established a pedestrian flow and added BridgeDesigner's bridge and a stage to the area.

*The bridge is now positioned and a pedestrian flow is added to the scene.*

*BridgeDesigner can be seen returning from the whiteboard with a content card in his left hand.*

*UniversalAccess - "actually this should stop before the tracks"*

*BridgeDesigner - "Purple?" BridgeDesigner is talking to Bicyclist, BridgeDesigner places the purple triangular token on the table*



***Picture 18 - BridgeDesigner placing purple token***

*MW - "there it is, ..the stage" Bicyclist - "a rock band there, that's a good idea" IW laughs*

*BridgeDesigner is positioning the stage.*



*Picture 19 - The stage*

*UniversalAccess - "there they can play some music and some.." Bicyclist - "play some music, a scene is good idea"*

*THE CONVERSATION IS REALLY HARD TO HEAR, CHECK AUDIO FILES!*

*BridgeDesigner is looking through the content on the whiteboard, IW is standing beside him.*



*Picture 20*

*BridgeDesigner hands Bicyclist a content card, Bicyclist places it on the purple RFID reader.*

*Bicyclist - "no music??"*

*IW - "but this one had music associated with it"*

*BridgeDesigner can be seen taking out his Iphone up from his pocket.*

*IW - "this is more a crowd talking in a foajé of a theatre"*

*IW is looking at the back of a content card - "this one has music associated"*



***Picture 21 - IW looking at the content card, BridgeDesigner busy with his phone***

*BridgeDesigner is busy looking at his Iphone. There is a small intermission while IW checks something out.*

*11:59:51*

*Suddenly music is heard from BridgeDesigner's phone,*



*Picture 22 - BridgeDesigner placing his Iphone on the table*

*he places his phone on the side of the table, he smiles to Bicyclist and Bicyclist likes what he hears. Everybody laughs, MW - "there we go, it has music associated"*

In this excerpt there were four moves, the first move is a contextual move when BridgeDesigner selects the content card with the stage and establishes the representation on the ColorTable by assigning it to the purple token which he places on the map.

### Move - Contextual

*BridgeDesigner can be seen returning from the whiteboard with a content card in his left hand.*

*UniversalAccess - "actually this should stop before the tracks"*

*BridgeDesigner - "Purple?" BridgeDesigner is talking to Bicyclist, BridgeDesigner places the purple triangular token on the table*



***Picture 23 - BridgeDesigner placing purple token***

*MW - "there it is, ..the stage" Bicyclist - "a rock band there, that's a good idea" IW laughs*

The second move is a positioning move, fine tuning the stages position relative to the pedestrian flow going over the new bridge and the rest of the station area.



### Move - Contextual / placement 1

*BridgeDesigner is positioning the stage.*



*Picture 24 - The stage*

The third move comes as BridgeDesigner selects a content card which is supposed to have sound associated with it and Bicyclists places it on the RFID reader and reads it in.

This is a Change of properties move, adding sound to the representation.

## Move – Change of properties

*BridgeDesigner is looking through the content on the whiteboard, IW is standing beside him.*



*Picture 25*

*BridgeDesigner hands Bicyclist a content card, Bicyclist places it on the purple RFID reader.*

*Bicyclist - "no music??"*

*IW - "but this one had music associated with it"*

Due to a problem with the media database, which contains all content card media, no sound is heard, which results in another move by BridgeDesigner, using his Iphone to add the properties of music to the representation.

## Move - Contextual / placement and Expanding / building out an idea

*BridgeDesigner is busy looking at his Iphone. There is a small intermission while IW checks something out.*

*11:59:51*

*Suddenly music is heard from BridgeDesigner's phone,*



***Picture 26 - BridgeDesigner placing his Iphone on the table***

*he places his phone on the side of the table, he smiles to Bicyclist and Bicyclist likes what he hears. Everybody laughs, MW - "there we go, it has music associated"*

The process of establishing a stage at the station is an example of a design process as described by Schön, where one architect is seeing – moving –seeing having a reflective conversation with the situation. BridgeDesigner has observed the conversation taking place,

made a move establishing the stage, seen that he needs to adjust its position, adjust the stages position. Seeing again he wishes to add sound to the representation, add sound by assigning a content card to the stage representation, seeing that it does not work and that another solution is needed and make another move adding the properties of sound by placing his Iphone on the ColorTable playing the music he selected and finally seeing that the move is successful by the response form the other participants.

## 5.4 Individual creation of representations – the sketcher

In the following excerpt BridgeDesigner creates drawings using the ColorTable sketcher, an input device which uses a camera to scan in paper drawings, transferring them in to the ColorTable media database which then can be assigned to content cards for use on the table. BridgeDesigner creates drawings of his 3D model idea, direction signs and an electronic poster wall. It is not easy to follow the conversation in this excerpt, a large part of the conversation centers around assigning different color to the drawings BridgeDesigner has created, the result of BridgDesigners efforts can be seen in Picture 27 - Sketched representations.

*MW - "so you read in and we go there with the barcode, then you choose a color and put this there like with the other content the color you want to select and place the token, I can take your barcode, if it bothers you"*

*IW - "I'm so bad at orienting on this map"*

*MICHI - "this is the viewpoint"*

*IW - "yeah, and no it is here"*

*MW - " so it's light blue"*

*BridgeDesigner - "light blue"*

*IW - "and use this light blue"*

*BridgeDesigner - "and I stick this where I wanna"*

*MW - "where you think"*

*BridgeDesigner - "I'm completely lost in this system here"*

*MW - "this is the viewing angle, there is your bridge"*

*BridgeDesigner - "aha, look already"*

*MW - "now perfect,.. give it like a color if you want to or change the scale or anything you like"*

*BridgeDesigner - "I can give you the color"*

*MW - "yeah, you just wait and the colors just keep on changing and you take away the card when the colors which you want"*

*BridgeDesigner - "I take away.."*

*IW - "I just put it away"*

*BridgeDesigner - "I put this down, aha, okay"*

*MW - "blue"*

*BridgeDesigner - "okay"*

*IW - "it has just been registered"*

*BridgeDesigner - "I want one color for each sign"*

*MW - "okay so you have to give each sign a different color"*

*BridgeDesigner - "let's try this"*

*MW - "you have to lay it down"*

*BridgeDesigner - "I did"*

*MW - "oh, is it continuing or is it not"*

*MICHI - "yes it's yellow"*

*BridgeDesigner - "it has changed"*

*IW - "so you want to register it again"*

*BridgeDesigner - "I can make it white so"*

*MW - "anything you want to"*

*MICHI - "this is why.."*

*MW - "I have no preference"*

*IW - "you want to produce a second one with a different color?"*

*BridgeDesigner - "no, no it's okay"*

*IW - "that's okay"*

*BridgeDesigner - "the next drawing"*

*MW - "I just wanted to tell you that it cycles, it just keep on going"*

*IW - "okay and this one" ... no the blue object doesn't track, the dark blue one is not tracking"*

*IW - "what shade, green? ... I give you a green one, I have a green one"*

*BridgeDesigner - "you have the green one?, and the content card?"*

*MW - "assign"*

*BridgeDesigner - "so this was, this one?"*

*IW - "this blue, this is this one"*

*BridgeDesigner - "the blue one is there"*

*IW - "yeah"*

*BridgeDesigner - "and we are looking maybe behind"*

*MW - "the green is the one you are currently using.. you can turn it a bit and you can look straight..yeah"*

*BridgeDesigner - "ah, but to the left would be like this way"*

*MICHI - "ja,... but you also rotate a bit"*

*BridgeDesigner - "it's much better when it is real-time"*

*MICHI - "what do you mean"*

*BridgeDesigner - "when you can see it's moving, it's real-time"*

*MICHI - "it is not like 100 percent, there is some delay"*

*BridgeDesigner - "yeah"*

*MICHI - "yeah, it's easier to do this" ....*

*IW - "it's no longer yellow person, very strange"*

*MW - "no IW"*

*BridgeDesigner - "I changed it"*

*IW - "you changed it?"*

*BridgeDesigner - "but I can try, .. I can take it away?"*

*MW - "yeah" ...*

*BridgeDesigner is explaining his designs in the background "but you have a 3D model with the bridge and the "you are here",..the buildings have the same color as the map of the campus which you got in the mail maybe before you went or picked up , maybe with the same color as the signs"*

*Architect - "what is it?"*

*BridgeDesigner - "it's a board for putting up your own posters, let's use the whole white building for that instead"*

*BridgeDesigner - "there are people talking around the map, a 3D map"*

There are two moves in the events above, the first is a contextual move creating the representations using the sketcher and adding them to the ColorTable media database.

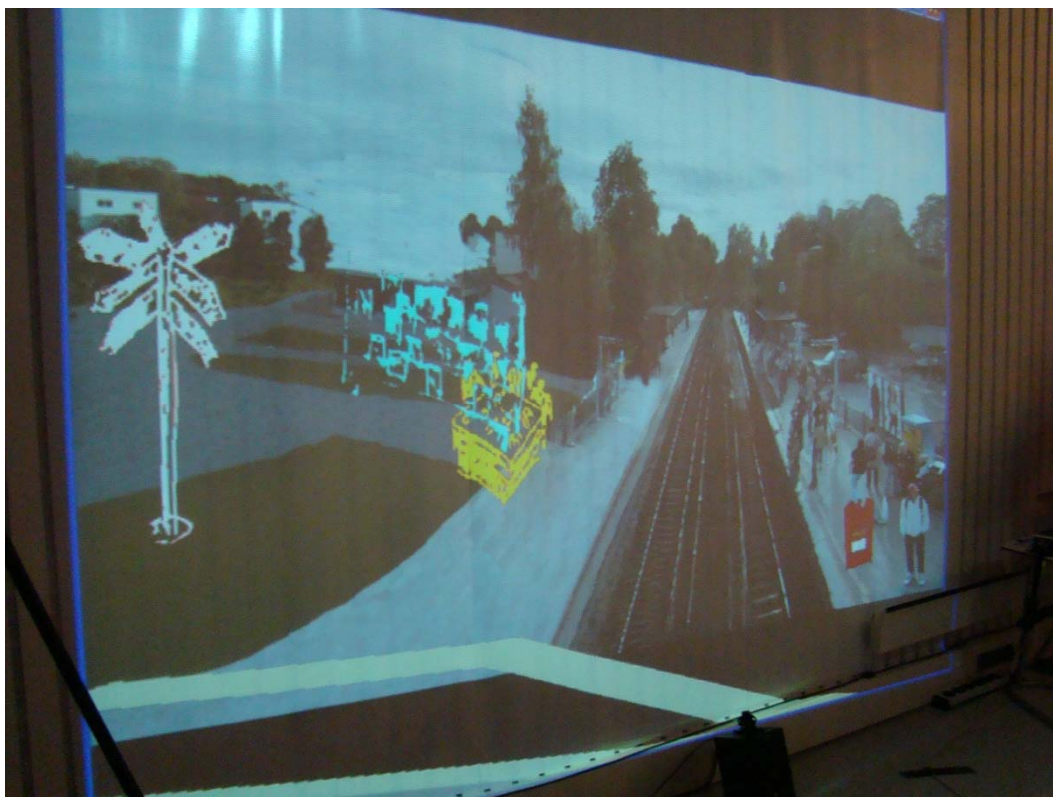
### **Move - Contextual**

BridgeDesigner creating the representations for a 3D model, sign and poster wall.

The second move is a placement move or a series of placement moves, placing the representations at different locations around the station area.

### **Move - Contextual / placement**

Positioning the representations throughout the station area.



**Picture 27 - Sketched representations**

So what can be said to summarize and describe a Non-Participatory idea:

A Non-Participatory idea is a non-participatory series of moves by one individual which representations are present in the final design specification.

All these examples of individual initiative have one thing in common; they are all initiated by one individual; BridgeDesigner.

When applying the “moves” terminology to “Non-Participatory ideas” I find that it is easily transferable to the individual immediate actions of creating physical representations on the ColorTable. I do however find it more difficult to apply it to the stages where the initiatives exist in idea form only, but when action is taken based on the cognitive representation transforming it into a physical representation, the move is easier identifiable. In this chapter we saw BridgeDesigner not only designed his representations using a process of moves as described by Schön, he also, on his own, made decisions, moves; as described by Langley et al., influencing the final design specification.

I find it difficult to apply the Langley et al. theory on organizational decision making to the concept of Non-Participatory ideas beyond the concept of moves / decisions. In their article Langley et al. recognize “*the central role of individuals as decision creators, actors and carriers*”, that decisions often “*involve the same key people*” but this in turn applies to the context of a large organization where key people have multiple avenues of influence within that specific organization, but does not make the decision on their own as in the case of Non-Participatory ideas.

Within the context of the ColorTable workshop there may exist a possible difference of opinion and understanding of the frame for the workshop. It is within these differences one can seek to understand the concept of individual initiatives through the perspective of Langley et al. From the data material one can observe the stakeholders reluctance and resistance, especially on part of Architect (as we will see in chapter 6), to changes in their existing design, this is a personal interpretation and maybe stretched a bit too far, but it is almost like they brought a finished final design specification for the station area to the workshop and have little (or no) intention of changing this specification. The other participants appear to come with a more open mindset and are there to design a new station area based on their experience and expertise.

Within this context one can understand BridgeDesigner’s individual initiatives as a method



for controlling the outcome of the workshop, he brings forward his own ideas and by creating representations he ensures that his ideas are part of the final specification.

If one views BridgeDesigner's and Architect's opinion of the frame for the workshop as a context of its own, one could say that these individual initiatives are what Langley et al. describe as Lateral Contextual linked decisions, a strategy, with a strong influence on the final design specification. This is however not the Langley et al. intended use of the concept as their concept has a broader scope where decisions are linked as a result of organizational culture and structure serving as a base for strategic decisions.

Similar to what we saw in chapter 4 there were four types moves present in Non-Participatory ideas; Contextual, Contextual placement moves, Contextual change of properties and Contextual Expanding / building out moves.

In picture 27 we can see a poster wall, this is not BridgeDesigner's idea originally, BridgeDesigner's creation of this representation can be seen as recognition of the other participant's ideas and might be an influencing factor in the other participant's acceptance of the 3D model which only UniversalAccess verbally supported and LocalResident questioned or this might be an example of idea "planted" by other participants which unconsciously as established itself in BridgeDesigner's mind and which he now presents as his own, the data is inconclusive on this matter, due to gaps in the recorded material.

As mentioned in the introduction to this chapter there are other examples of individual ideas and representations in the data material which I have not discussed. I have chosen to focus on the representations that manifest themselves as physical representations on the Color Table, but in the following chapters we will see examples of both Participatory and Non-Participatory ideas and representations in various contexts.

## 6. Mechanisms of blocking and creation.

We have now seen how design ideas and individual initiatives come to life and how representations are created, but not all ideas reach the table. This section analyzes factors and interactions that prevent the creation of new ideas and representations.

I have selected a number of factors or processes of interaction that in my opinion, directly or indirectly, prevented the creation of new design ideas and representations.

I have found three main categories of blocking; self-imposed restrictions, lack of interest and blocking by a stakeholder. There is also a fourth category and I will return to that in the discussion chapter.

The first category is self-imposed restrictions.

### 6.1 Self-imposed restrictions: Realism limiting abstraction – the building.

Comparing the participants of day one and day two of the workshop, the participants on day two had a strong opinion on the level of realism. The workshop team had prepared different versions of panorama P1 and P6, as described in the appendix, P1 with and without the building next to the station and P6 with half of the building erased.

P1 without the building was created to provide the participants with a clean slate for creating new designs and was the preferred panorama by the participants on day one.

The following excerpt and the excerpt in section 6.1.2 illustrate the bias towards the realistic version of the panorama.

*While the system is restarted UniversalAccess suggest that they should continue the discussion of flows,*

*Architect wants them to work on panorama P1 with the building to make it more realistic, since it's not possible to realize a bridge in the area without the building, since it can't be demolished. The building is also privately owned.*

*BridgeDesigner- "you first have to buy it and then tear it down"*

*Architect-"the moment we buy it, we know the heritage authorities will want to save it because it's part of the functionalistic building area here" referring to the Blindern / Vindern area.*

In this short excerpt *Architect* voiced his preference for working with panorama P1 with the building in place, because “*it's not possible to realize a bridge in the area without the building, since it can't be demolished. The building is also privately owned.*” It is interesting to observe *Architect*'s strong preference for keeping the participants working on panorama P1 (with the building), when the option to start with a clean slate is available, but he is not the only participant with a preference for realism.

### **6.1.2 The building, part 2.**

In this excerpt we will see that both *LocalResident* and *BridgeDesigner* share *Architect*'s preference of panorama to work with.

*IW -"but the panorama did not change"*

*MICHI -"what did you read in?"*

*IW -"oh, we didn't read in the panorama"*

*MW -"it's the same panorama until you read in a new one"*

*IW -" do you want it with.., which panorama do you want now"*

*LocalResident -"with the building"*

*IW -"with the building or that one on the bridge?"*



*Picture 28 - IW pointing out the different panorama locations to the participants*

*The participants discuss the different panoramas, UniversalAccess suggests they select the P6 panorama so that they can look around the whole area.*

*Bicyclist think that is a good idea, IW hands Bicyclist one of the barcode readers and Bicyclist scans the P6 barcode.*



*Picture 29 - Bicyclist scanning in the P6 barcode*

*When the panorama appears on screen Bicyclist says "so, welcome"*

*IW asks if this is a silent panorama*

*GAMMON answers "no, no"*

*The P6 panorama starts out looking north so the participants need to rotate the view 180 degrees to see the station area.*

*UniversalAccess - "so if we think about the information building or information area or something like that"*

*BridgeDesigner - "but now it's not right, what we see here is not the same as the.. this picture shows along the tracks now, the house is gone, the kiosk"*

*PublicTransport - "it's that one"*

*UniversalAccess - "it's just because they have erased it"*

*BridgeDesigner - "so it is not on there so we can choose the other one"*

*IW - "but then it's another panorama, but if you want the building in, that's okay"*

*Bicyclist scans in the barcode for panorama P1 with the building.*

*BridgeDesigner - "that's the more correct direction"*

*IW - "it's the more correct direction, it's the best panorama here"*

*BridgeDesigner asks IW "so we can't see the house from here?" he is pointing to the P6 barcode on the map.*



*Picture 30*

*MW - "no we cannot"*

*IW - "yes of course"*

*MW - "no, no, Ina we cannot"*

The “move” by *Architect, LocalResident and BridgeDesigner* to keep the participants working with panorama P1 (with building) are linked decisions that, compared to the design specification create during workshop day one, may have impacted the final design and the level of “creativity” in the design process. Architect and BridgeDesigner are both stakeholders in this workshop and a solution close to the preexisting design suggestion by *BridgeDesigner* is in both their interest, preserving the stability and increasing the “value” of the existing design suggestion. Looking at the move from the perspective of Langely et al, this decision can be seen as move creating “*Precursive Linkages*” to future decisions. The move to keep working with the building in place can be seen as a decision that is “*Enabling*” making “*certain outcomes more likely*”, in other words working with panorama P1 increases the chance of a solution containing the building. But the move can also be seen as a decision that creates “*Cascading*” linkages, meaning that “*One decision may set off a series of decisions on a wide range of issues.*”, the decision to keep the building impacts future decisions on a variety of issues where the building may play a part, such as positioning of other objects, flows, functions etc.. LocalResident’s interest in working with the building may be more of an emotional attachment than stakeholder interest, since she has lived and worked in the area for years.

In the next section we are taking a look at another factor influencing the design result, limited interest.

## **6.2 Exploring the Research Park – limited interest in the area.**

Trying to place the pond in front of the new Informatics building engages most of the participants; they are not creating a new design idea, but exploring the design that is under construction. Just as during day one, the participants are faced with technical problems with the Color Table. This may be an negative influencing factor in the creation of new design

ideas, but the workshop participants during day one where more eager to play with the design and this in my opinion, has to do with the composition of the group, and the attachment to the area. On day one, three of the workshop participants where students at the Institute for Informatics, one can imagine that they are not bound by the day to day regulation of planning, building code and dealings with the municipality like for example Architect and BridgeDesigner may be. With limited interest the participants are quick to move back to the station area, leaving the troublesome Research Park panorama behind.

I find it difficult to directly apply the writings of Langely et al to the influence of limited interest, but Schön can be applied if one regards this limited interests as a result of a move which did not lead anywhere, an unsuccessful move, and where the designer needs to take as step back and continue down another path of moves.

The next design influencing process we are going to take a look at is “blocking”.

Blocking is where the stakeholders “reveal” themselves, where they take an active role in stopping attempts to change their interpretation of the situation and defend their decision and designs, either by direct “confrontation” or through trying to persuade the other participants with argumentation or by creating alliances with each other.

### **6.3 Blocking by a stakeholder – the third party argument**

It is difficult to pinpoint the kind of ideas the participants self-imposed restrictions and lack of interest put an stop to, one could only compare the design process on day two with the design process of day one and observe the difference in the final design specification, it is however easier to present the ideas that were blocked by stakeholders, preventing them from being a part of the final design. In the next excerpts we will see how Architect stopped several of the ideas that would have impacted the new station area and bridge design. The common thread in these excerpts is Architect’s use of a third party argument in trying to stop the ideas.

### 6.3.1 "I don't think the authorities like it"

*UniversalAccess says " maybe people with disabilities would like to park close to the train and then take the tram down to the city" Architect -"I don't think the authorities like it because it will be kind of a kiss and ride place, someone drive you to the station and then leave with the car".*

### 6.3.2 "Sporveien don't want it, outside the elevators, they malfunctions is... too high"

*UniversalAccess -"as I understand, understood your suggestion"*  
*BridgeDesigner -"yeah"*  
*UniversalAccess -"it would be much more sharper angel (angle) but you would need to go quite a slope around to get in to the tram or.."*  
*Architect -"you can take the stairs"*  
*UniversalAccess-"yeah, but if you have a.."*  
*Architect -"disabled?"*  
*UniversalAccess -"if you have a trolley or"*  
*Architect -" yeah, but then there is demands to lots of steep slopes"*  
*UniversalAccess -" yeah"*  
*Architect -"Then you have to travel a distance anyway"*  
*IW -"But why can't you build an elevator for instance for those people"*  
*Architect -"Elevators in the outdoors functions extremely bad here."*  
*UniversalAccess -" yeah. For Asker stasjon...(har de det)"*  
*Architect -"Sporveien don't want it, outside the elevators , they malfunctions is... too high"*

“Sporveien” is for those not familiar with the transportation system in Oslo the company which operates the Metro lines across the city.



### 6.3.3 "today, this is a private garden belonging to the artist [Name], she don't want"

*BridgeDesigner - "It's one part of it, we have already talked about this area"*

*IW - "yeah"*

*BridgeDesigner - "we want people to maybe stop here and meet here and get information here and by newspapers here maybe or coffee, .. so it's a mingling area instead of just a that, if that is what one wants, one have to create that in cooperation with I think with this building and the activities, and another thing is the potential of this area if it's possible to get in to this area, who owns it? Instead of having cafe and tables that are in the way of the flow here, you could move this way and could have terraces with chairs or whatever"*

*Architect - "today, this is a private garden belonging to the artist [Name], she don't want"*

### Analysis

Architect is successful in his efforts to block many of the suggestions and ideas that would influence the new design plans. In 6.3.3 Architect even stops the suggestion coming BridgeDesigner, his key alliance partner and fellow stakeholder.

Architect's efforts creates Preempting linkages, as Langley et al. describes it "One decision may render other issues irrelevant, obsolete, ..." which is what Architect is trying to achieve, stopping the other participants ideas, rendering them obsolete, trying to increase the value of the existing design by presenting it as the alternative already approved by the third party. Architect's blocking is successful which we will see in the analysis of the final design specification later.

In the next section we will take a closer look at the alliance between the two stakeholders Architect and BridgeDesigner and how they work together to prevent alterations to their preexisting design.

### 6.3.4 The expert's assessment.

This next excerpt is interesting because it shows the alliances between Architect and BridgeDesigner at work and how their common understanding of the flows in the area differs from the other participants. I also show how they defend their design from UniversalAccess's suggestion to establish ramps from the station and up to the bridge. Architect and BridgeDesigner advocate their design using humor and try to persuade the other participants that their assessments of the flow patterns are correct. The excerpt is seven pages long, trying to compress and condense it, is difficult, but the conversation is easy to follow and shows the dynamics between Architect, BridgeDesigner and the other participants, especially with UniversalAccess.

### 6.3.5 Architect/BridgeDesigner vs. UniversalAccess

*UniversalAccess - "But actually if, if you have a wheelchair and if you come here, do you need to go up there and over there...?"*



*Picture 31 -UniversalAccess asking if wheelchairs need to enter the bridge at the location she is pointing to*

*BridgeDesigner - " yes, because you need to climb up the hill.."*

*UniversalAccess - "because like it is today you are going this slope like this and I observe several people, one man with you know very heavy bags and so on and, and he seems to be too ... dårlig til bens"*

*Bicyclist - "ja"*

*TB - "bad legs"*

*UniversalAccess - "yeah, bad legs so he actually preferred to go this slope, and I doubt that he would go you know all the way up there."*

*BridgeDesigner - "You know the new regulations for the, the sloping here is like 1 to 15. 15 meters long, one meter up."*

*Bicyclist - "aha"*

*BridgeDesigner - "But actually the road that goes to Blindern is steeper than the regulations for a normal new construction"*

*Bicyclist - "so it is an illegal road"*

*BridgeDesigner - "this road is illegal and this one too."*

*Bicyclist - "aha"*

*BridgeDesigner - "It's too steep. So we have actually made a much better slope than the slope that continues after the campus."*

*UniversalAccess - "Yeah, but would it still be possible to have a connecting slope up to the bridge here?"*



***Picture 32 - UniversalAccess wants to know if it's possible to build a ramp from the platform on to the bridge***

*BridgeDesigner - "but, ehm, you, we already did. You know now the platform is one meter higher than the area in front of the kiosk, we will make that flat, from the platform, flat into the ... it will be filled in much more then it is now. And then you have a little slope up to the beginning of the bridge and you continue little slope up the bridge so it's perfect for wheelchair, the slope. And it has to be the distance to be able to roll up. The only other way is to have an elevator to get quicker from here to the other side, but now the slopes are all like this and like this. You can't do any steeper than that and go down and you go down."*



***Picture 33 - BridgeDesigner explaining how wheelchairs will move over the bridge***

*UniversalAccess - "I am not sure if I understood. You need to go up on the road up to the beginning of the bridge?"*

*BridgeDesigner - "yeah"*

*Architect - "but the you go horizontally, today you go one meter down to this area"*

*Bicyclist - "and then up again"*

*UniversalAccess - "ok,"*

*Architect - "and then up again, so you go down the hill here and then you have to go one meter.."*

*UniversalAccess - "yeah, but my point was to shorten the road or the track you have to go"*

*BridgeDesigner - "yeah, but this is.. From this area and to get over the bridge you'd have to have a certain distance to have this angle that you can manage to roll"*

*PublicTransport - "but if you think the other way. Nowadays you have to travel downstairs and then up, you have to go down and up ... you see"*

*UniversalAccess - "Yeah"*

*Bicyclist - "so if you come from this side.."*

*IW - "But still it is a long way. If you are tired it is a long way"*

*BridgeDesigner - "but you have a long way to go wherever you are going also so.."*

*Everybody laughs..*

*BridgeDesigner - "of course, it's flat first so you could have avoided that with the ramp, that's what you mean?"*

*UniversalAccess - "yeah, a ramp connecting to the bridge, yeah"*

*Architect - "but the trains coming with six wagons is like that long"*



*Picture 34 - Architect illustrating the size of the trains*

*and when you are going out on the platform here the distance anyway... is not"*

*BridgeDesigner - "Is not very far"*

*Architect - "It`s not far, it`s the movement vertically that is.."*

*UniversalAccess - "yeah, but I imagine that many people that go off the tram here, they would like to go over to the other side"*

*BridgeDesigner - "yeah"*

*Architect - "But they don`t go step up there. They go here, here, here, here, here, here, all the way"*

*UniversalAccess - "yeah, but what I observed was that actually many people that would take the stairs and go up over here, they would go out of the tram here and many people that just were going up to Blindern they will go off the tram here, so people they know that they are going to go off and.."*



*Picture 35*

*BridgeDesigner - "They want to take the shortest.. yeah"*

*UniversalAccess - "yeah"*

*LocalResident - "So it they already plan before they get on the tram.."*

*BridgeDesigner - "so it's like 120 meters eh long, but of course they will try and be in the middle of the train to get off here. Ehm, the main exit for the platform will be here in this area. (SNAP) Actually with this lockers that, possibly, like you have in Majorstua, which will be used for the tickets system so everyone has to get through like a 6-7-8 meter opening."*



**Picture 36**

*And then you get into the welcoming area"*

*UniversalAccess - "yeah"*

*BridgeDesigner - "which is flat and where you have all the information and graffiti and paper, screens, or whatever moving things that everyone wants.. and then you.. then from there you orient yourself where you are going into the direction you want"*

*UniversalAccess - "but if you know the area well you just want to go where you are going quickly so, so my question is ... why wouldn't you like a ramp up to the bridge?... hehe"*

*Architect - "if you account the traffic flows there , there is no more, no one, going from that platform to that, except the people that made, took the wrong train, because when you are coming here you are moving from here to the areas around, not down to the platform"*





*Picture 37*

*UniversalAccess - " Well, several people did that actually because, one of the ticket machines didn't work, so they had to run over to the other side to buy the tickets and back again"*

*BridgeDesigner - "Instead of fighting with the controller.."*

*Architect - "but, but"*

*Bicyclist - "try again!"*

*Architect - "but the main traffic is from that side more now than earlier because there is increasing traffic, from the north side because of the ring, but most of traffic is still on this side up to the Blindern platform and that is vast, largest amount of"*

*BridgeDesigner - "you exit here and you have maybe 20 - 30 meters before you will start a little slope and then you continue the slope and then you are on the top to go wherever you want, so it's actually 20-30 meters that you are talking about that you want to make shorter. If you are a pedestrian you will walk up the stairs fairly soon, and up on the hill, but the bridge is here so what you will have to do here is to, to start here you would have to do a ramp up this or up this or up this, to get up, and the distance, difference, would only be those 30 meters that are flat here"*



**Picture 38 - BridgeDesigner** *"so it's actually 20-30 meters that you are talking about that you want to make shorter"*

*, which is the meeting point. So we chose to make the staircases close as possible to get over from one side to the other side and use the terrain, the natural terrain for the ramps because these ramps are, they have to 3 meters wide. We already have a seven meters bridge and if you add 3 meters for a ramp and the slopes, you get the huge destructions scene into this"*

Architect and BridgeDesigner work together to stop UniversalAccess suggestions on how to alter the bridge design, suggestions which are based on her own experience at the station, but dismissed by the two stakeholders as they present their solution as “perfect” and compliant with regulations and how all other solutions would be illegal and create a huge impact, destroying the area.

### **6.3.6 Authority – putting the foot down - Architect vs. SoundResearcher and UniversalAccess**

Persuasion and the third party argument can only take you so far; it is time to put the foot down.

*SoundResearcher - "one thing I was thinking of was when I had my interview for this, and also because I was standing on top of the bridge there for a long time and listening to the sounds and watching what was going on, is that it's an extremely fascinating place to be and it's really nice to just be on top there of the bridge just looking out and seeing what's happening especially if you are waiting for the metro you can stand there for like five minutes and watch*



*what's going on, and so, you didn't think about of any type of like platform that kind of thing to step on to just to, to stand there and watch"*

*BridgeDesigner - "yeah, just now.. hehe" the group laughs*

*SoundResearcher - "because I really found that to be the most fascinating place when I was doing my tour, really just to stand there in the middle of the bridge looking out" Architect - "the bridge will be quite wide"*

*BridgeDesigner - "it's three meters here so it's plenty of room for you to stand there as long as you like, yeah"*

*Architect - "you don't want to stand there when there is two trains stopping at the same time at the main traffic point, people would push you of but normally you could stay there quite, quite late"*

*SoundResearcher - "ohom.. you could invite for a private meeting point up there, a date on top of the..hehe" UniversalAccess - "but if you are a group of, with children from the kindergarten you want to gather them all, before you move on"*

*IW - "so but you see mainly, as I have seen, so this should be also a nice area for people to meet, but over here that's just a nirvan so for the bicycles people to see any dangerous pedestrians there or there, I think there is the kindergarten and the way coming past from here, from this park"*

*UniversalAccess - "actually wouldn't it be nicer to have this meeting places in the green areas, because.."*

*BridgeDesigner - "sure"*

*UniversalAccess - "I think this tram noise isn't so..well.."*

*BridgeDesigner - "the main now at least, the main amount of people is here"*

*UniversalAccess - "yeah"*

*BridgeDesigner - "from town to town"*

*Architect - "ohom"*

*BridgeDesigner - "of course to town you have to go over here, but it's arriving from town"*

*UniversalAccess - "yeah, and you have café and so on, up on the campus well.., so I think I imagine people with, would normally be here to buy paper and something to have for their tour home from work or, not exactly sitting down in a cafe"*

*BridgeDesigner - "you could get off, get your take-away coffee here go up the stairs over the bridge to work, or that way"*

*Bicyclist - "so we talked quite a bit about the welcoming part and so, but when you are leaving the place you are sort of, want to have a nice departure, what do you call it, not welcoming,*

*but friendly"*

*Architect - "farewelling"*

*BridgeDesigner - "farewell party"*

*Bicyclist - "farewell party place or, so then you are.. more in a travelling mode, so how to get to that, and I guess it's mostly from here to town in the afternoon"*

*UniversalAccess - "maybe you would have this coffee shop on the middle of the bridge"*

*Bicyclist - "maybe"*

*SoundResearcher - "but I mean people are coming from both directions, I mean not everyone is coming this direction when they go to the University, people live on the other side too, so they from this side too"*

*Architect - "you will not establish anything on the bridge I think"*

*IW - "hehe, okay"*

*Architect - "that's a, that's too far-fetched, it's too far-fetched"*

*IW - "this is, how do you say a machtwort, authority"*

## **6.4 Alliances**

In Participatory Design the objective is to include users in all elements of the decision-making process, a noble goal, but as we have seen difficult to achieve due to the division of power needed between stakeholders and users. In the chapter on blocking one can see the power struggle taking place between the stakeholders and user. Stakeholders do their best to defend their design decisions, in a number of ways, or seek to establish support when challenged by the other participants.

From the data one can see that there were several alliances present and formed during the workshop. Alliances were present in both creating and blocking of design ideas.

Early on we see the strong alliance between Architect and BridgeDesigner. From my analysis of the video material and my observations during the workshop Architect was reluctant to take part in the familiarization phase, he could be observed sitting on a chair besides the table drinking coffee and engaging in side conversations with BridgeDesigner.



**Picture 39- (photo: Lisa Ehrenstrasser)**

He participates when BridgeDesigner explains his design and states his opinion on matters that would influence the design of the area, uses his position and power to block conflicting ideas. BridgeDesigner on the other hand seems more open to discuss the design with the other participants but is quick to justify his design based on knowledge, for example, concerning regulations involved in public space design. He seeks to create alliances based on his own ideas by persuading the other participants to share his view and succeeds in the case of the changing the location of the ticket machines where his design is accepted as a solution to the problem.

The strongest opponent to the Architect-BridgeDesigner alliance is UniversalAccess. UniversalAccess questions the design decisions made, especially concerning the bridge and the lack of access ramps or elevators to shorten the distance crossing the bridge from one platform to the other, especially for people in wheelchairs or people pushing strollers. UniversalAccess also build alliances to forward her ideas or topics of interest. With the support from Bicyclist and PublicTransport she explore the flow of people and placement of ticket machines at the station, she picks up on BridgeDesigner's idea of transforming the area outside the station to meeting point and suggest they create an information center and together

with Bicyclist they create a representations incorporating Architect's welcoming ideas and the information center. UniversalAccess, Bicyclist and PublicTransport, with the help of LocalResident, play important parts in creating a common understanding of the problems with the new bridge design, highlighting the possible conflict between pedestrians and bicyclists on the bridge. This in turn results in Architect and BridgeDesigner letting go of their positions, take a new perspective and a participatory redesign of the bridge takes place.

This change of perspective can also be seen when BridgeDesigner creates a representation for a poster board on the sketcher, an idea he to a degree questioned. I have not discuss this poster board representation in any of the previous sections, if one looks at the characteristics it could be categorized as a design idea or an individual initiative, but I am more inclined to place this in its own category as alliance building through representation. When BridgeDesigner creates this representation, on his own initiative, he brings recognition to the ideas of others. He creates this representation at the same time as he creates representations for his "individual initiatives" like the 3D map model and it is done during a coffee break with no other participants present.

SoundResearcher was not present during the whole workshop day, but when he returns he provides fresh energy to group; he presents lot of ideas especially related to sound, which is his field of expertise, they provide some interesting dialogue but none of the ideas end up as representation even if they are to a large extent agreed upon. SoundResearcher and UniversalAccess experience Architect's power position blocking when SoundResearcher suggests establishing a meeting point and UniversalAccess a coffee shop on the new bridge.

The workshop had an eight participant, a coworker of PublicTransport, whom did not engage in any of the discussions, he took an observing role right from the start and had little or no influence on the design process.

## **Analysis**

In this chapter I have presented the different categories of blocking that directly or indirectly had or could have had an impact on the design process.

The blocking of ideas came through self-imposed restrictions, limited interest, persuasion and

direct blocking by a person of authority. The self-imposed restrictions by the participants on day two of the workshop arguably influenced the final design specification compared to the less rigid attitude shown by the participants on day one; this does not mean that the final design specification is of lesser value.

The decision to preserve the building was a “*subjective decision*” by the group, a “*normative judgment of quality*” as Schön describes it. The decision to keep the building gives “*direction*” and “*thrust*” which Schön writes is important for the design process and keeps it from becoming “*unmotivated*”.

Limited interest can as previously mentioned be seen as a move which did not resolve a problem, an unsuccessful move, that results with the participants backtracking their decisions falling back to the previous successful move which was at back at the station area. The reason for their limited interest in the Research Park, could be a result of all the technical issues with this panorama or there may be other underlying reasons or motivations, but that is not an analysis for this thesis.

Blocking by stakeholders came in the form of both persuasion and confrontation.

BridgeDesigner tried to advocate his design as the perfect solution to the other participants while Architect used both the third party argument and direct blocking, by “putting the foot down”, when the new design was challenged.

Blocking is an example of a decision process which is “missing”, not visible, in the Langley et al. description and depiction of issue streams and issue networks. I think of blocking as the “fight” between two issue streams advocate by opposing interest which are trying to shape the design specification, these interest can, as we have seen, be either individual participants or alliances between participant.

Alliances in this workshop are formed on the base of mutual interests, understanding or enthusiasm for the same issue, a concept described as “*Contextual linkages*” by Langley et al. Langley et al. writes that Contextual linkages are “*Lateral Linkages Between Issue Streams*”, “*interrelated simply because they bathe within the same organizational context, involving the same people, the same structural design, the same strategies, and the same organizational culture and traditions.*” But alliances can also be characterized as what Langley et al. describe as “*Pooled Linkages*”, issues linked through political support, Langley et al. quotes Wildavsky; “*I’ll support your project if you support mine*”. Whether alliances are Pooled or Contextual linkages or both, they have significant impact on the design process with moves that both enable or block ideas and issues from becoming part of the final design specification.

## 7. Design ideas that die

We have seen that different types of blocking prevent design ideas from becoming representations, but some design ideas never reach the table because they die. Ideas can die when no action is taken to pursue them, they get left behind to slowly fade away as new ideas and moves bring the design process forward.

In chapter 6 we saw stakeholders take direct actions on ideas in an effort to prevent them from becoming representations; in this chapter we will see the other participants take action to abandon their own ideas.

The excerpts I have selected is the only example I have found which show this action of surrendering and abandoning of an idea where the participants come to regard their own ideas as irrelevant, accepting the stakeholders suggested design.

The example selected illustrates how ideas can die as a result of what Langley et al. describe as Preempting decisions.

The excerpt in 7.1 shows UniversalAccess, IW, Bicyclist and PublicTransport discuss the flow and placement of ticket machines around the station. Based on their own user experience they suggest a redesign of the area to improve the natural flow and placement of the ticket machines. In section 7.2 we will see that this idea dies when UniversalAccess seeks clarification from BridgeDesigner on his station area design.

But ideas may disappear in other ways than being “killed” through blocking or die for reasons explained in this chapter, they may also be “overruled” by other ideas as we will see in chapter 8, but first things first, let’s find out how ideas died during the workshop.

### 7.1 Moving the ticket machines

In this excerpt the participants discuss the placement of the ticket machines at the station and how they can improve the experience and flow at the station by moving them to a different location increasing their visibility.

*UniversalAccess - "but in the lunch we were discussing a bit how people with disabilities would know where the automates are placed, placed, and other people as well, you are coming (UniversalAccess moves towards the screen)*



**Picture 40**

*from the University area over here or the Forskningsparken (Research Park) and running down and you are meeting these two automates and you go on the "perrongen"- (Norwegian for platform) .. hva heter det? -( Norwegian for what is it called?)*

*LocalResident - "platform"*

*UniversalAccess - "and actually just around the corner here, behind you, there is a scanning automate for the, for the.. Ruter"*

*PublicTransport - "validation"*

*IW - " I didn't see you when she discovered this part you know"*

*MW - "you could turn around you can see.."*

*IW - "no I would say I never.. I've used this very often I didn't even notice that these are here, there"*

*UniversalAccess - "no yeah, exactly"*

*IW - "really very, very hidden"*

UniversalAccess, PublicTransport, IW and MW are sharing their experience with the current layout of the platform area and how difficult the ticket machines are to see if one enters the southbound platform from the west side. The ticket machines are located by the stairs coming down from the station bridge and hidden from view when entering the platform from the pathway passing the kindergarten.

*UniversalAccess - "and if you are coming with a wheelchair or a trolley or something , you are coming, you have to go outside here"*



*Picture 41 -UniversalAccess pointing out where people with wheelchairs would enter the west side platform*

*and you are coming in there*



*Picture 42 - UniversalAccess pointing out the location of the ticket machines*

*and then you don't know if you should go to the right or to the left, and there is some issues here, and I think it's the same along here*



*Picture 43 - UniversalAccess pointing out the problem areas on the east side platform*



*on this side, because the bridge is over there and the, and there is two..., several paths up to the University area"*

*Bicyclist-"yeah"*

*UniversalAccess -"so I think something about the flow inside this station area to, to really lead people on the right track... could be interesting"*

*Bicyclist -"It could be interesting to open it all up and making sort of a reception area*



**Picture 44**

*or instead of now, it's like you say, it flows through to the..., you have to sort of find it, know here it is and find it"*

*PublicTransport -"I think we should move these closer to the parking area."*

*IW -"I didn't get it, what did you want to remove?"*

*PublicTransport walks towards the screen. PublicTransport -"I think best would be to move this a little bit further down here*



**Picture 45 - PublicTransport wants to move the ticket machines so people can locate them easier**

*so then the people standing from there, and people coming from there can see that "*

*MICHI - "the street you want to move?"*

*PublicTransport - "not the street, no, no, the boxes"*

The discussion on relocation of the ticket machines and the exploration of the station area and possible solutions is an example of Schön's concept of "seeing", understanding and making a "normative judgment of quality" on the situation in front of you. After "seeing" the architect / designer proceeds to make a move, and based on the conversation one could expect that the participants would reposition the ticket machines by creating physical representations on the ColorTable and explore possible solutions with these objects, but as we will see in 7.2 a different move was made.

## **7.2 The design idea dies; it's incorporated in BridgeDesigner existing design**

We rejoin the conversation ten minutes later, UniversalAccess seeks clarification on the existing station design from Architect and BridgeDesigner regarding the flow and placement of the ticket machines.

*UniversalAccess - "So but actually, you talked about some kind of a .. You have to go through some kind of a ..."*

*Architect - "control"*

*BridgeDesigner - "control point."*

*UniversalAccess - "control, you don't have to do.."*

*BridgeDesigner - "There will be each on one side. So this is also the area for the opening...*

*so you can have a meeting point here or information point here. You need an information*

*point with maps or models or something like that" Bicyclist - "but you have access from the .."*

*UniversalAccess - "But you come from the.."*



*Picture 46*

*Architect - "You have to pass the control zone"*

*UniversalAccess - "so you have to have a control zone here and here?"*

*BridgeDesigner - "No. Because you come, there will be, half on the outside of a fence to get to the entrance of the station."*



*Picture 47*

*UniversalAccess - "so you come down the stairs outside the fence.." Architect - "yes, the bridge is a city bridge, not a station bridge. This is the new bridge, is part of the urban landscape,*

*not within the traffic system"*

*Bicyclist - "okay, so.."*

*UniversalAccess - "That`s good, so then the ticket machines as they are now are totally irrelevant"*

*BridgeDesigner - "Yeah, yeah. They go away. There will be a ticket machines and train information's by the entrances on each side."*

**The idea dies; it is incorporated in the existing station design.**

*UniversalAccess - " yeah because that is what is quite interesting. How people find their.., when they are in the hurry and they want to find the ticket machines and they want to do everything as quick as possible without merging together in long queues and so on. And also for visual impaired and so on to find these ticket machines very quickly"*

*BridgeDesigner - "that is right next to the entrance"*

UniversalAccess' and PublicTransport's idea for repositioning of the ticket machines is now obsolete it does not get a physical representation on the table, their concern already addressed in BridgeDesigner's design, and the representation is in their common understanding of the new design.

Applying Langley et al., this can be described as a Precursive Linkage between issues that is Preempting. Preempting means that *"One decision may render other issues irrelevant, obsolete or simply delayed."* which is the case here, BridgeDesigner's explanation of his design, renders UniversalAccess' and PublicTransport's idea obsolete, one could say that Preempting decisions swallows up other ideas and the ideas die. Preempting decisions can create what Langley et al. labels a *"fully-coupled issue network"*.

Fully-coupled issue network are often present in centralized organizations with dominant leaders, where the *"tight linkages"* are not created by the issues, but by the influence of the dominant leader or leaders, not unlike the situation found in this workshop with the two powerful stakeholders, Architect and BridgeDesigner.

Within the theoretical frame set by Schön one could look upon this as either a *"negated"* move on behalf of UniversalAccess or PublicTransport, or as I choose to see it, as an increased understanding of the domain that is created by BridgeDesigner's design on which a

new normative decision of quality can be made, allowing the original idea to simply fade away and die.

In the next chapter we will take a closer look at the process of redesigning the station bridge, after the exploration of flows in the area has revealed a possibly dangerous conflict, and we will take a look at how ideas get overruled by other ideas.

## **8. Redesign – changing ideas**

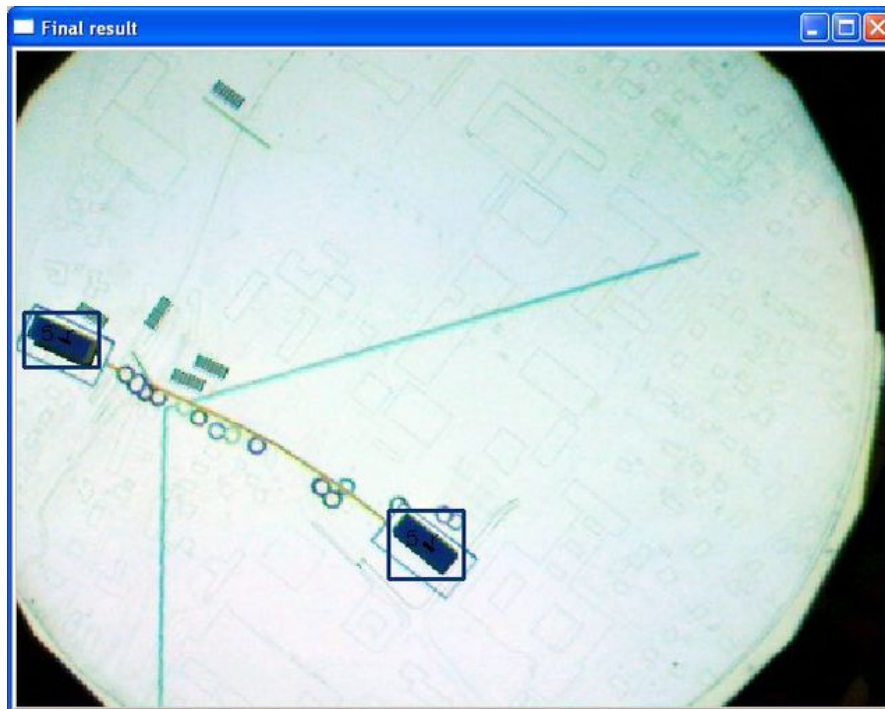
In previous chapters we have seen BridgeDesigner present his design for the station area and explain his design for the new bridge to the other participants. We have seen Architect exercise his authority blocking criticism and improvement suggestions from the other participants.

But is the new bridge design as perfect as the stakeholders claim it to be?

To find out we need backtrack and start with the original bridge design, 8.1 is a quick reminder.

### **8.1 Original design**

*BridgeDesigner explains that the main idea was to connect the two sides of the tracks, the bridge will go from Blindernveien and over the tracks to the hill where the kindergarten is located.*



*Picture 48 - Flow over the new bridge concept*

*BridgeDesigner explains the physical size of the bridge and that there are two lanes on the bridge, divided by the bridge arch, separating the pedestrians from the bicyclists.*

## 8.2 Redesigning the bridge

The new bridge design has flaws, is not perfect, and who has realized this?.. Architect.

This excerpt contains, in my opinion, the most interesting process that took place during day two of the Color Table workshop, the process of redesign based on the exploration of the area, the feedback from participants, new insights and a change of perspective from stakeholder Architect. The excerpt shows a process that takes place over time and it is eleven pages long, but the conversation is easy to read and the result is as previously mentioned very interesting.

In this excerpt the participants explore the conflicts within the new bridge design by placing different flows representing the different user groups. We join the participants after a question from IW the moderator.

After some contemplation Architect points out that there are problems with the new design.

*Architect - "It will be bikers crossing and bikers are in the opposition to pedestrians"*

*IW - "yes"*

*Architect - "and then there will be conflicting lines, because moving from here to there and then the bikers just passing by in a high speed so there is a lot of conflicts within the flows. and also in the new project try to solve it. Here the conflicts are not that big because all traffic stops"*

*IW - "Ja"*

*MW - "so maybe if you want to just start because it is difficult to solve it just by imagining it all together. Maybe you just want to start placing the conflicting lines and then seeing all there everywhere where the conflict"*

*Bicyclist - "We can make one line with the.."*

*Architect - "The biker, the bicycle, yeah"*

*MW - "yeah"*

*Bicyclist - "there"*

*MW - "Yeah. .... you need the rectangles"*

*IW - "we will just have to see that its tracked, yes"*

*Bicyclist - "yeah, shall we say that that is a low density pedestrian path ? The one here"*

*Architect - "high density"*

*Bicyclist - "high density"*

*UniversalAccess - "Is it l... at least medium"*

*Architect - "high density"*

*IW - "what kind of path? you don't have bicycles?"*

*Architect - "you have bicycles?"*

*Bicyclist - "high density bicycle path"*

*BridgeDesigner - "yes"*

*Bicyclist - "like this"*

*Architect - "It is one of my main bicycle roads"*

*UniversalAccess - "yeah"*

*Bicyclist - "and now we get the bicycle sound"*

*IW - "yeah"*

*Bicyclist - "and then we have a conflicting line maybe here with pedestrians"*

*Architect - "from there"*

*Bicyclist - "or maybe.."*

*Architect - "to there"*

*BridgeDesigner - "maybe we could take away the old.."*

*IW - "you can also, you can also make many paths here so you don't have to be economized on.."*

*Architect - "they are so few"*

*UniversalAccess - "I think it's here"*

*Architect - "it's here, it's Forskningsparken (Research Park) people"*

*Bicyclist - "yeah"*

*UniversalAccess - "yeah"*

*IW - "so it's here?"*

*UniversalAccess - "maybe... yeah"*

*Architect - "and they are stepping off the station here"*



***Picture 49 - Architect placing the flow token representing people exiting the station***

*UniversalAccess - "both here to here, and here to here"*

*Bicyclist - "yeah. Shall we start with.."*

*IW - "this one is not"*

*BridgeDesigner - "actually, it's a set of a turning.."*

*MICHI - "It might be outside of tracking area, the orange one...."*

*Architect - "High density street.."*

*Bicyclist - "so that's a.."*

*MW - "If you want them to go further you can also consider doing all this on the large scale map then you can stretch the ends further and"*

*IW - "but we can stay for a while here because it's.."*

*MW - "yeah, however you want"*

*IW - "yeah"*



*Bicyclist - "okay, so now we have a conflict, conflict zone"*

*UniversalAccess - "but , ehm.."*

*IW - "you have to put on the white, on the white area. Yeah the orange, it's not the yellow , it's the orange"*

*BridgeDesigner - "that's yellow, isn't it?"*

*IW - "no, that's orange"*

*BridgeDesigner - "It's orange? Okay.."*

*UniversalAccess - "so who are these people coming here, that's mainly people coming of the tram"*

*Bicyclist - "coming from the center"*

*LocalResident - "coming of the tram wanting to go to Forskningsparken (Research Park)from the wrong side of the platform"*

*UniversalAccess - "so they would need to go there or up the stairs, up to the bridge"*

*Architect - "yes they take the stairs or ..."*

*Bicyclist - "and then there would be, is the bikers coming high speed here there will be.."*

*Architect - "at one point, they have to choose which side of the road, now on the bridge, because one side is, bike..sykkelvei, the other is a footpath"*

*UniversalAccess - "so maybe the people who are going, coming here go under the bridge and up the stairs, in order to, to."*

*BridgeDesigner - "most of the people are on top of the bridge already, they come here, they are on top where the bridge starts, so they will go on to the bridge or cross over the cycle path and go over the bridge"*

*UniversalAccess - "so they have to cross the traffic"*

*BridgeDesigner - "yeah"*

*IW - "are these all the conflicts?"*

*UniversalAccess - "no"*

*Architect - "we have the people arriving here wanting to go to Blindern of course"*

*IW - "yeah, yeah"*

*UniversalAccess - "should we put.."*

*BridgeDesigner - "so they need to go up the stairs and on to the bridge"*

*Architect - "this side"*

*BridgeDesigner - "sykkeldelen lå på den siden av?(the bicycle lane on this side of the..?(construction)"*

*Architect - "ja"*

BridgeDesigner -"sykkelveien på den siden?(is the bicycle lane on this side?) "

IW -"that's maybe too close to the other one"

BridgeDesigner -"fotgjengerne går på feil side av broen!(the pedestrians are walking on the wrong side of the bridge!)"

Bicyclist -"so it will be quite a mess over here?"

Architect -"I think, I want to have it"

IW -"but if you have it on top, that's not possible if you have them so close"

Architect -"no, I will introduce more problems then.."

LISA -"you already did I think"

IW -"you did, yeah"

LISA -"little bit apart please"

IW -"just a bit separate"

LISA -"yeah, thank you"

IW -"so that it recognizes the shape also"

Architect -"do we have any car traffic?"

IW -"we have car traffic, okay"

BridgeDesigner -"that's some car traffic, hehe"

IW -"do we have a road" ....

Bicyclist -"These buildings?... I've never seen any cars there"

BridgeDesigner -"there's tractors and some people working there, come maybe seven in the morning, before you"

Bicyclist -"okay, before I arrive"

BridgeDesigner -"hehe"

Bicyclist -"so they have already restrictions on their driving there?"

BridgeDesigner -"no, no"

IW -"that's the wrong way, you have to move it a little"

UniversalAccess -"these cars will go under the bridge and they.."

Architect -"no, they"

UniversalAccess -"no?"

Architect -"they will go across"

BridgeDesigner -"just where the bridge starts"

Architect -"just before the bridge starts"

BridgeDesigner -"can this be turned so it goes like this?... No it will turn to this side"

MW -"adjust the angle and it flips again, it has like a minimum angle and it turns"

*BridgeDesigner - "okay.. this is not to bad"*

*MW - "yes, hehe"*

*BridgeDesigner - "this is gone now"*

*Architect - "but all these flows are crossing each other in a way"*

*Bicyclist - "yeah"*

*Architect - "most of them meeting or going parallel on the bridge, but in these positions there are conflicts"*

*BridgeDesigner agrees with Architect.*

*UniversalAccess - "so, have any of you seen any children from the kindergarten going alone here"*

*Architect - "They never go alone"*

*Bicyclist - "always with the.."*

*BridgeDesigner - "if you see one you should tell.."*

*Architect - "but they are moving in big groups"*

*UniversalAccess - "yeah"*

*Architect - "traveling, but they go to the platforms"*

*Bicyclist - "so is it.. maybe it should be made some..something to reduce the speed of the bikes"*

*BridgeDesigner - "I was just going to say that, that is the main danger"*

*Bicyclist - "here somehow that's the main danger, yes"*

*BridgeDesigner - "in this area here actually"*

*Bicyclist - "because it's actually.. today it's reduced because it's such a narrow bridge, but if the bridge is"*

*BridgeDesigner - "you come down here, it's the steepest part and you go into, this junction here where you have pedestrians crossing and coming up the stairs and suddenly into the cycle way"*

*IW - "so that can be really be high speed then"*

*BridgeDesigner - "yeah"*

*UniversalAccess - "but it wouldn't be a partial solution at least to make a tunnel under the bridge here?"*

*Architect - "it's no distance enough to make this.., you have to cross on the same level, then you have to go down here and back again to make the move"*

*BridgeDesigner - "you have the possibility to walk and cycle here, but then you have to go up an cycle like this, so you would choose to come down here and go straight into the bridge if"*

*you go that way or just up there, but if you come from this side, it will go straight into the bridge and then you have the highest speed, you have high speed down here and up on the bridge and probably high speed that way too, it's not very steep, so"*

*Bicyclist - "we could make a traffic light",*

*group laughs,*

*Architect - "it's not a bigger conflict than all the biking streets in Oslo, crossing other footpaths"*

*BridgeDesigner - "no"*

*Bicyclist - "but it's a serious problem"*

*Architect - "it's a problem"*

*LocalResident - "but could it sort of be separated so that stairs come up to the part where you are walking and the bikes could sort of be..."*

*Architect - "the stairs are up to the footpath, on the other side you have the..."*

*BridgeDesigner - "bicycles are all separated in their own lane, all the way, but at this point you have to cross over, you have to cross over"*

*Bicyclist - "yeah"*

*LocalResident - "do you really have to cross over"*

*BridgeDesigner - "yes"*

*Bicyclist - "you can't jump over in a..."*

*BridgeDesigner - "over the cycle path, so you need stripes for the pedestrians"*

*LocalResident - "but we can't sort of split the bridge so the stairs come up between"*

*BridgeDesigner - "no, there is no room for, then you need three levels...hehe"*

*LocalResident - "yeah"*

*IW - "and it's dangerous, I'm not, I'm not, I'm a pedestrian I'm not always aware that I'm on a bicycle path"*

*LocalResident - "you can make a steep uphill for the bikes so they can go up to the next level, when you are in deep thoughts you just..."*

*Bicyclist - "yeah"*

*BridgeDesigner - "that will happen, people walk here and they will walk on the bicycle path and be in the way for the cyclists"*

*IW - "yeah"*

*BridgeDesigner - "and that will slow down the cyclists"*

*Bicyclist - "that's true..., in Trondheim there are a quite few wide bridges, maybe eight meters wide, with both bikers and .. it's a mess there.. high speed bikers and oh oh oh"*

*Architect - "In Denmark, if you walk in the bikers areas, they hit you"*

*Bicyclist - "hehe"*

*Architect - "they go past you and they give you.."*

*UniversalAccess - "but what about the material, if you make the material you walk on better for walkers and better for bicycles, I don't know.."*

*BridgeDesigner - "you can make like stripes, like beacon areas, so you have to get off your bike and walk across the bridge, they will not be very popular with the cyclists, hehe"*

*Architect - "wheelchairs and bikers want the same surface"*

*UniversalAccess - "yeah"*

*Architect - "and pedestrians too, non-slippery but smooth"*

*Bicyclist - "ohm"*

*UniversalAccess - "because the most natural would be to walk.., maybe you could have bikers in the middle and walking area on each side"*

*BridgeDesigner - "ohm"*

*Architect - "but you have the crossing points"*

*UniversalAccess - "yeah, but then you.., if you cross when you come up here you would not have long time to be aware the bicyclists, but if you are walking here then you would see the.. if you are seeing them"*

*Architect - "but that.. if you are moving from Forskningsparken to Blindern you would take the other bridge, without these conflicts"*

*UniversalAccess - "yeah, but"*

*Architect - "if you move here you have to cross at one point"*

*UniversalAccess - "but my point is that, if you are walking up here for a while, then you get more time to be aware of the cyclists coming up there"*

*LocalResident - "if you have stairs on both sides you don't need to cross"*

*MW - "sorry, I'm just freezing it so that we can take it away and then we can go back if you want to change it, because it's just.. the tracking, sorry"*

*IW - "I think that was a good move, thank you"*

*MICHI - "there's one missing now or?"*

*IW - "no, it's okay"*

*MW - "sorry"*

*IW - "what is it a bicycle, it is low density, so it's very.."*

*UniversalAccess - "I think it's very difficult to see the traffic coming when you're coming in such a sharp turn, so it's better if you can have some time to walk here and see that someone*

*is coming before you are crossing the.."*

*LocalResident - "I think the worst spot is, if you come up from the stairs and then come directly.."*

*Architect - "we mean that, it's.., you have good time moving from Forskningsparken down to this bridge, you will see the traffic, in good time, so it's not a suddenly crossing"*

*IW - "okay"*

*BridgeDesigner - "it's not quite the right scale"*

*LocalResident - "but when you come the stairs from the platform.."*

*Architect - "you go to the footpath, and the bikes would be on the other side"*

*LocalResident - "okay"*

*Bicyclist - "so it's a separation, a separation line?"*

*Architect - "within the construction"*

*BridgeDesigner - " this is the main construction of the bridge"*

*UniversalAccess - "so.."*

*BridgeDesigner - "so there is three meters on each side, and the minimum pedestrian width is three meters and the cycling width is three meters, but what is interesting is one could make a, if one manages to make a separation so that you make sure the pedestrians follow here and can go both ways on this pavement and the same here, but the cyclist would go this way along the construction and this way on this construction, then you solve little pieces of the problem here and the problem here, but you still have a crossing over to get from here and down, then you have to cross everything so.., it's a possibility but then you need to maybe use a raised area and have the problem with cleaning and tidying, you have to have a machine, which needs three meters also to get over to tidy and sweep and move snow, and all this, so if you use a yellow line it will not be respected by the pedestrians or the cyclists, you don't know which one, which side to go. The pedestrians will always go on both sides"*

*IW - "but you could use color coding, that one lane really dark red and one.., I don't know.. another color"*

*BridgeDesigner - "it's not respected"*

*UniversalAccess - "don't you think there is a tendency to follow the bikes world, you are more or less automatically going to go right"*

*Architect - "you have been here, everything is shades of grey in Norway"*

*IW - "okay"*

*BridgeDesigner - "if you have a raised area it's often best, like a pavement, at a different level"*

*Architect - "I think we have to accept there is conflicts"*

*UniversalAccess - "the question is how to reduce conflicts" Architect - "and we have to make them clear that you come to a conflict point, a street crossing whatever, but when you think you are walking on a good lane it should be kind of safe and you shouldn't have surprises and it should be not to steep but.."*

*BridgeDesigner - "but one is used to is, if you have a raised crossover, you know that you can see it's going to be a bit uncomfortable to go over at a high speed here, if it's fairly steep and you have a crossover, that's a possibility"*

*UniversalAccess - "so if you.."*

*IW - "also for the wheelchairs?"*

*BridgeDesigner - "yeah, that's not a problem"*

*UniversalAccess - "if the cyclists have to have a bit lower level than the pedestrians, then they have to go over a bump because the pedestrians are coming here and crossing over to the pedestrian and the bicyclists are cycling on the lower level"*

*BridgeDesigner - "possibly"*

*Architect - "but we should be very careful introducing unnecessary design element to restrict traffic, because not far from here there is, the cyclist who cycled in to kind of a gate, which he didn't see, at Lille Vindern, and he broke his neck falling off the bike"*

*BridgeDesigner - "you have to have a very good light, that's another element you could use, lot of light here"*

*UniversalAccess - "yeah"*

*BridgeDesigner - "so you see the people coming in, you see the cyclists coming" Architect - "the design elements should be visible, easy to see the start and stop of the stairs, the contrast should be good for people with bad sight"*

*UniversalAccess - "even thou a bump here you can visualize very well but the cyclists need to slow down to.."*

*Bicyclist - "or just keep the bridge narrow as it is today, because then you reduce.."*

*Architect - "or maybe you should make a turn on the.., make it natural to slow down"*

*Bicyclist - "I mean today it's not a problem, because it's too narrow to bike and walk at the same time so that sort of.."*

*LocalResident - "it's a real problem when the bikers don't respect us"*

*Bicyclist - "yeah, sometimes"*

*Architect - "you don't go fast on the existing bridge due to the.."*

*Bicyclist - "it's not a big problem here since it's too narrow for both biking fast and walking,*

*so then it's not a problem, very few accidents I think, and it's working.."*

*Architect - "no, it gives everyone a bad feeling, crossing this bridge"*

*Bicyclist - "are you sure?"*

*Architect - "almost everyone is looking through it"*

*Bicyclist - "that's one aspect"*

*Architect - "it's slippery, everyday"*

*Bicyclist - "it's a bit cozy as well you meet people and you are brought together, in a way"*

*TB - "all the kids like looking down you know"*

*Architect - "all?"*

*BridgeDesigner - "but people with big stiletto heels and"*

*UniversalAccess - "but you didn't want to separate the cycling lane and the walking lane here, inside the bridge?"*

*BridgeDesigner - "why?"*

*UniversalAccess - "did you want to separate"*

*BridgeDesigner - "it is separated with the carrying construction of the bridge, it's one single carrying construction in the middle that carries the whole bridge, because the floor in the bridge has to be as thin as possible, cause you have the train height and you have the sloping to get this as short as possible, you need to have it as thin as possible"*

*PublicTransport - "but is it filled like it's nothing going through?"*

*BridgeDesigner - "it's a compact"*

*SoundResearcher - "what type of material, concrete or?"*

*BridgeDesigner - "possibly concrete, asphalt"*

*UniversalAccess - "what about rain and snow, do you have a roof on the bridge?"*

*BridgeDesigner - "I'm not sure exactly if it will be heated or.. it's no roof, no. That's one of the reasons it has to be wide enough for machines from here or somewhere else to keep it clean, to take away the snow and ice and gravel and so on, but usually you know it's a slope from here to both sides so you will have a drainage system on each side to catch water, so it's no different from any other, it's like any other road construction"*

*UniversalAccess - "yeah"*

*BridgeDesigner - "that is what this is, this is a continuation of this road, it's a traffic machine really, but it's for pedestrians and cyclists, not for cars"*

*UniversalAccess - "yeah" IW - "okay, so is this situation clear?"*

*Bicyclist - "we have at least identified the conflict zones"*

*IW - "the conflict zones, yeah"*



*Bicyclist - "I guess this is the main, I don't think it's so.."*

*IW - "and this one we haven't talked so much about, no.."*

*UniversalAccess - "but essentially it's the same the same issue on both sides, isn't it?"*

*Bicyclist - "it's a worse situation, tougher situation to handle now with the wider bridge than it is today, so.."*

*BridgeDesigner - "you have higher speed of the bicycles some times of the day, but of course when there is a lot of people, you know, four o'clock in the afternoon or nine in the morning, the cyclist would have to adjust their speed to lot of people, and some cyclist will be angry because there are people walking on what should be the cycle lane"*

*SoundResearcher - "Is that going to be a physical thing between separating the two of them?"*

*BridgeDesigner - "yeah, it's the big construction"*

*SoundResearcher - "exactly"*

*BridgeDesigner - "actually this part is like, comes from this road and you will have to turn around where the bridge start and go around through a narrow to get in to the working area, so cars will go very slow here, but of course they would have to look out for bicycles coming from both sides, that's important, so it's a conflict zone for working machines that go here, tractors, and so on and bicycles"*

*UniversalAccess - "but when you are coming here and are going down the stairs..ehm.."*

*PublicTransport - "I think the best thing to do is to set up some warning signs for the bicycles or the people, I think it's the best, because what I have learned about Norwegians or people living in Norway is they keep strict to the laws or warning signs"*

*SoundResearcher - "really?"*

*PublicTransport - "yeah, they respect it"*

*Architect - "Swedes do"*

*BridgeDesigner - "we walk across the red light all the time"*

*UniversalAccess - "yeah"*

*PublicTransport - "that's because there is no traffic, so I do it all the time"*

*IW - "no traffic..hehe"*

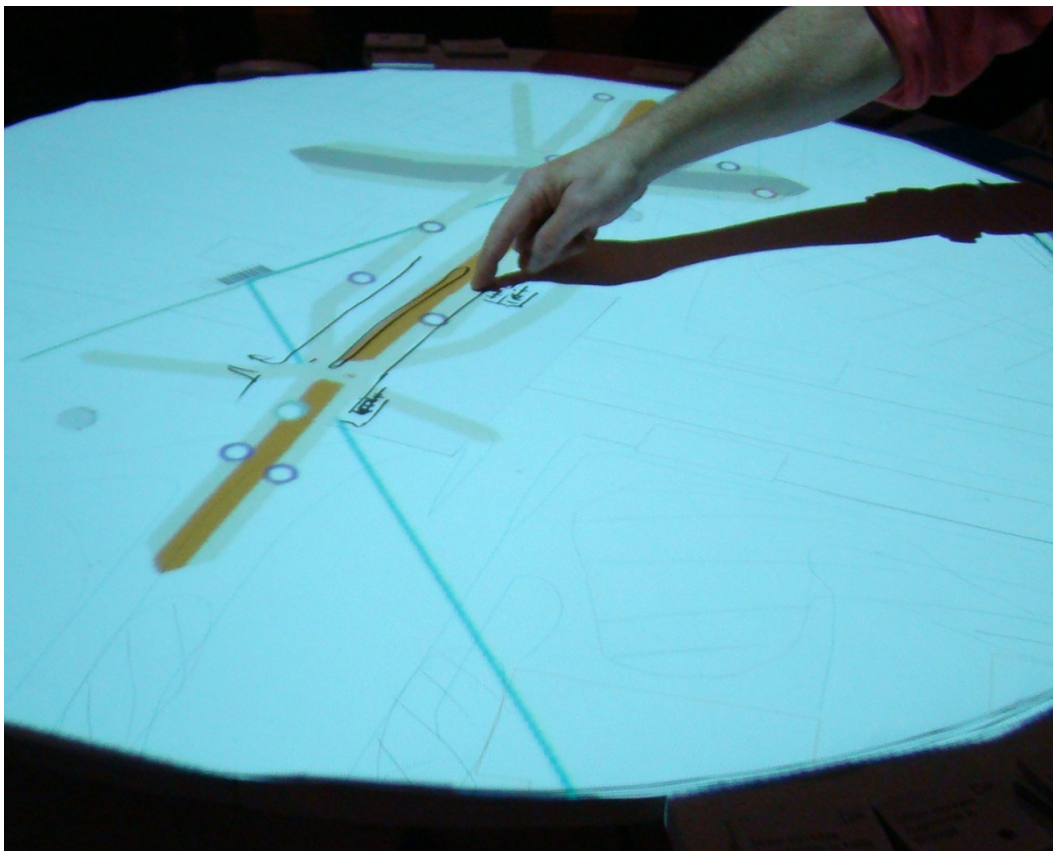
*BridgeDesigner - "I think the most important is that it's open here, so that you don't have any bushes or now that the fence along here has to be, it has to be possible to see above or through, but there are no bushes or trees and obstacles to visibility, because you come high speed down here, you must see if there is someone coming here with the bicycle or walking, or if someone is coming up the stairs here, so that's important, the same here of course, even more that the tractor can see if there is someone coming."*

*UniversalAccess - "even more important that the bicycles can see all the people coming, for example blind people"*

## **Analysis**

By Architect taking a new perspective he realizes that there are possible problems with the new design and triggers an in-depth exploration of the conflicting issues, creating representations for the different flows in the area.

During this exploration BridgeDesigner realizes that his bridge design creates conflicts by having the pedestrian path only on one side of the bridge, and even worse on the opposite side from where they access the bridge from the station, and that in combination with the bicyclists entering the bridge at a high speed from the west would possibly create dangerous situations. BridgeDesigner redesigns the bridge, based on the input from the other participants, using a piece of paper which he places on the table on top of the map, onto where he draws the new design with its four paths, two on each side of the bridge arch with pedestrians at the outer side of the bridge and bicyclists along the middle on both side of the arch.



**Picture 50 - A sheet of paper with sketch of the bridge**

Within Schön & Wiggins theory on the design process, as a process of seeing-moving-seeing, there is a natural link to the bridge redesign process.

Schön & Wiggins write that Architects (and Designers) make moves based on their “*Appreciative system*”, “*appreciative systems are variable. They may vary from individual to individual*” and “*..They may evolve over time.*”. Schön & Wiggins write that designers operate in many domains and that designers will discover unintended consequences, ripple effects in other domains that they were not aware of.

*“When we design, we deal with many domains, and many qualities within domains; our moves produce important consequences in more than one domain. In the extreme case, a move informed by an intention formulated within one domain has consequences in all other domains,”*(Schön & Wiggins ,pp. 72)

Through exploration and discussion of flows on and around the bridge, BridgeDesigner and Architect’s appreciative systems evolve and they discover unintended consequences of the existing bridge design. Based on this process of *seeing* a move is made to redesign the bridge to mediate the problem and resolve the issue.

Is interesting to observe the participants bring up the possible solution for solving the pedestrian vs. bicycles problem by keeping the old bridge or make the new bridge narrower to reduce the speed of the bicyclists. To apply Schön this would mean that the new bridge design could be seen as a “*negated*” move based on the normative judgment of its qualities and that keeping the old bridge is a natural back tracking step. The participants however made a different move and continued with the redesign process modifying the new bridge.

Applying the theory of Langley et al., the redesign process can be seen as Sequentially Recursive linkages in an Issue Stream where “*similar decision situation ... recur because prior choices have not finally resolved the issue*”, the bridge design has unresolved conflicts which are addressed during the iterative process of redesign.

Not unlike Schön’s concept of an evolving appreciative system Langley et al., write that “*Early decisions*” can “*generate learning that may influence later*” decisions, these decisions form what Langley et al. describe as Precursive Linkages. The concept of Precursive Linkages may however not be directly transferable as Precursive Linkages refer to linkages across different Issue Streams, but Precursive Linkages of the Learning type may occur within the same issue area.

This redesign of the bridge is the riches of all the design ideas during day two of the workshop it is an example of true Participatory Design work, starting with an existing idea,

exploring and analyzing it through the use of flows and other representations, coming to the realization that the design has conflicts and problems and through cooperation between users and stakeholders redesign the bridge based on the richer understanding that the tools of the Color Table have aided the participants in creating.

Architect and BridgeDesigner's "Learning" or "evolving appreciative system" came as a result of the inclusion of other stakeholders. Based on the other stakeholders input they were "forced" to change their potentially dangerous design, a good example of the value of including other stakeholders through Participatory Design.

## **9. Visual analysis**

### **9.1 Illustrating the design process**

Throughout my analysis I have tried to come to terms with the intricacies of the design process, I have made use of coding to classify and categorize the phenomena that I have observed. I have made extensive use of color coding to distinguish the actions of and interactions between the different participants creating drawing and illustrations to better help me understand the design process. Since this has been an important part of my own process I would like to present two different concepts for illustrating a design process.

As an iteration upon hand sketches I experimented with the use of flow charts in my analysis. Figure 1 illustrates how content and ideas end up on the Color Table denoted by the arrows pointing to the circle representing the table. Arrows that point beyond the table and off the page are statements and ideas that are still a part of the ongoing conversation and still in play so to speak.

In figure 2 we see a different process taking place, the process described in thesis as 'blocking'. The lower part of the illustration shows how the idea of establishing elevators from the platform and up to the bridge is blocked and ends up in the trash can.

Figure 3 depicts an idea that dies, when the participants accept that the BridgeDesigner's

design of the station area incorporates their concerns regarding the placement of the ticket machines.

As my work with this thesis progressed I realized that using flowcharts to illustrate complex and lengthy design processes did not correlate with my desire provide an easy to follow visualization of the design process. While the flowcharts contain and show all conceptualized patterns, they are too tied to the dialog in the transcripts and do not provide the level of abstraction needed for conveying the design process in an easy to understand manner. Being fascinated with the concept of visually illustrating a creative process I continued working on the idea.

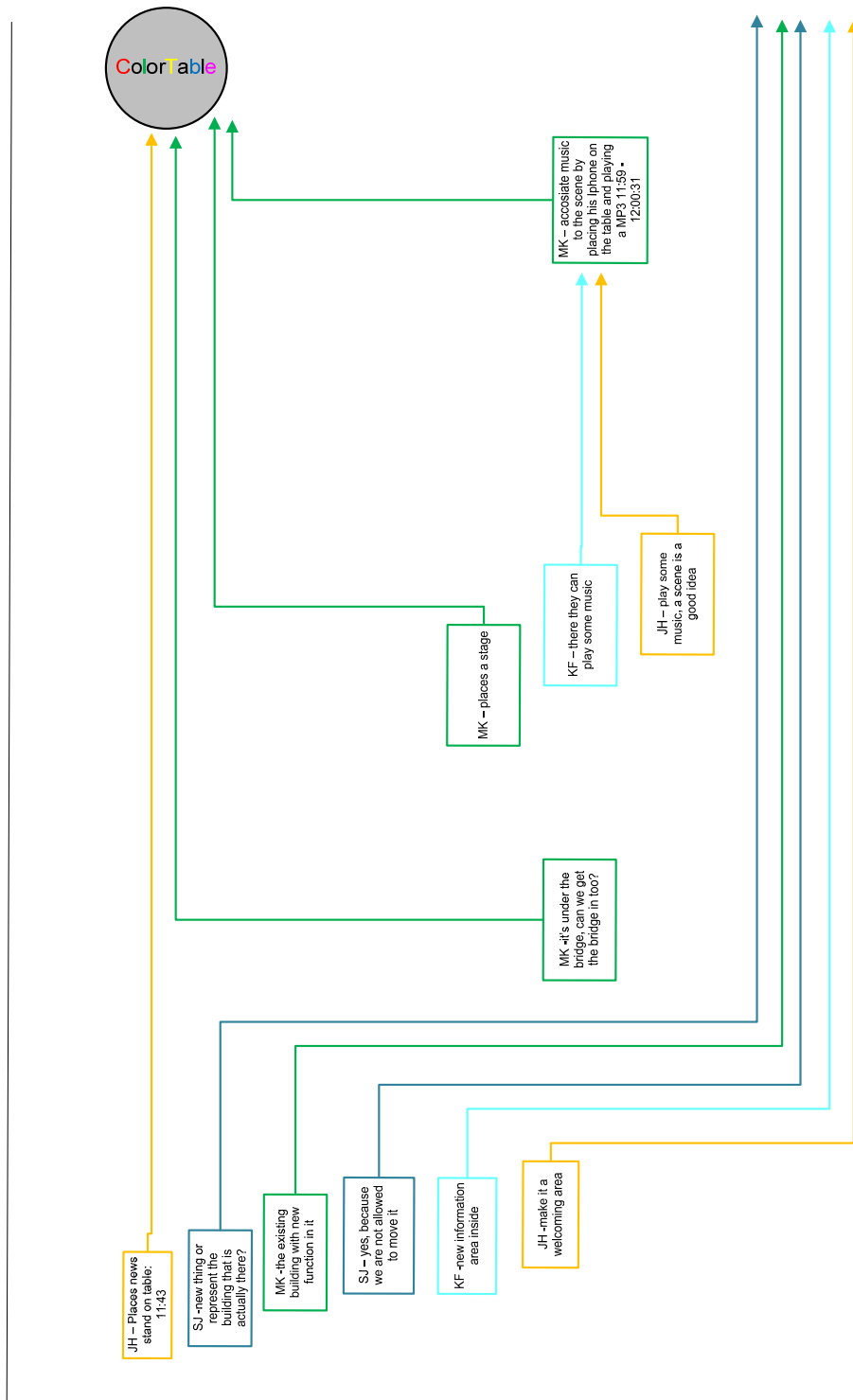


Figure 1

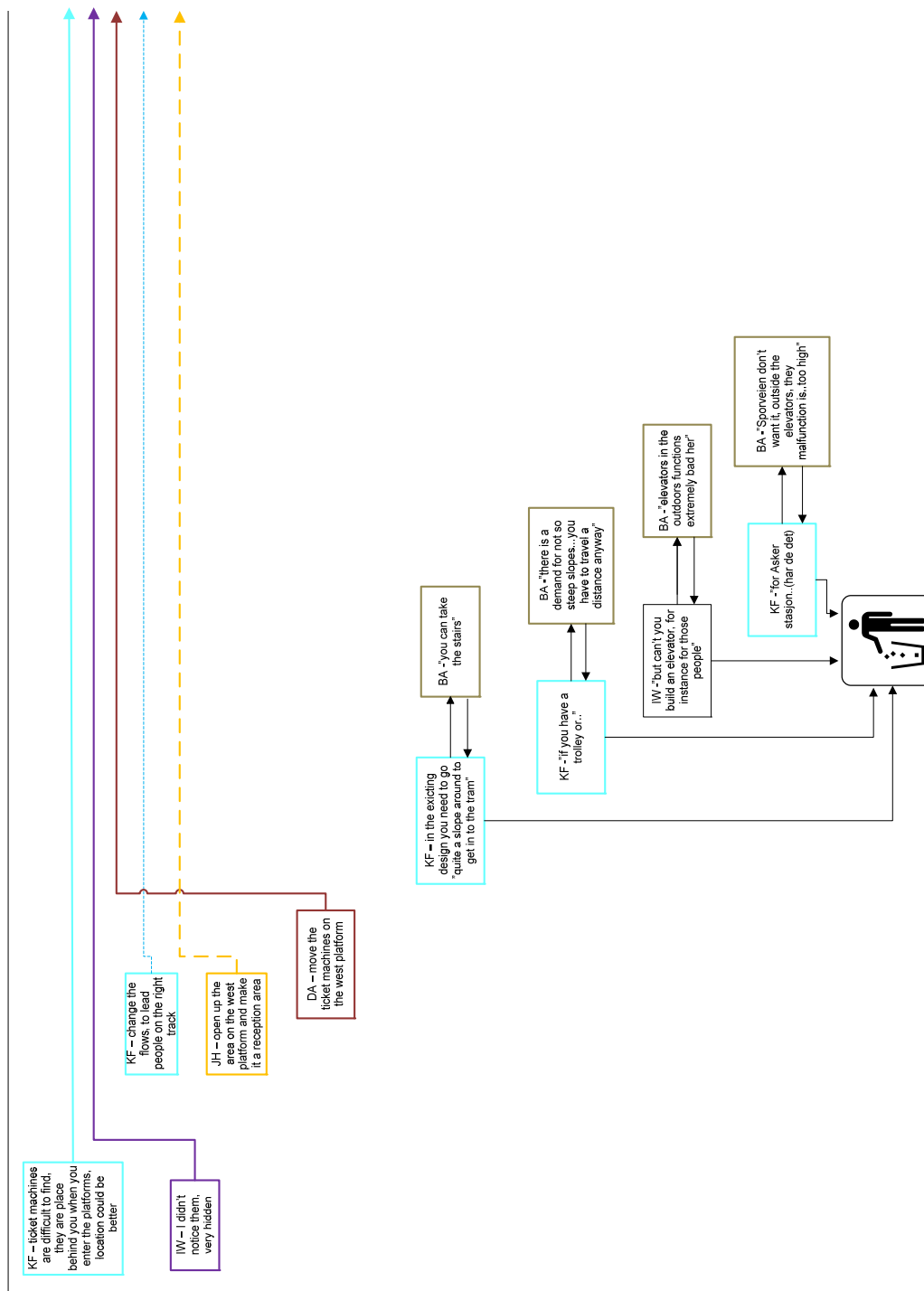


Figure 2

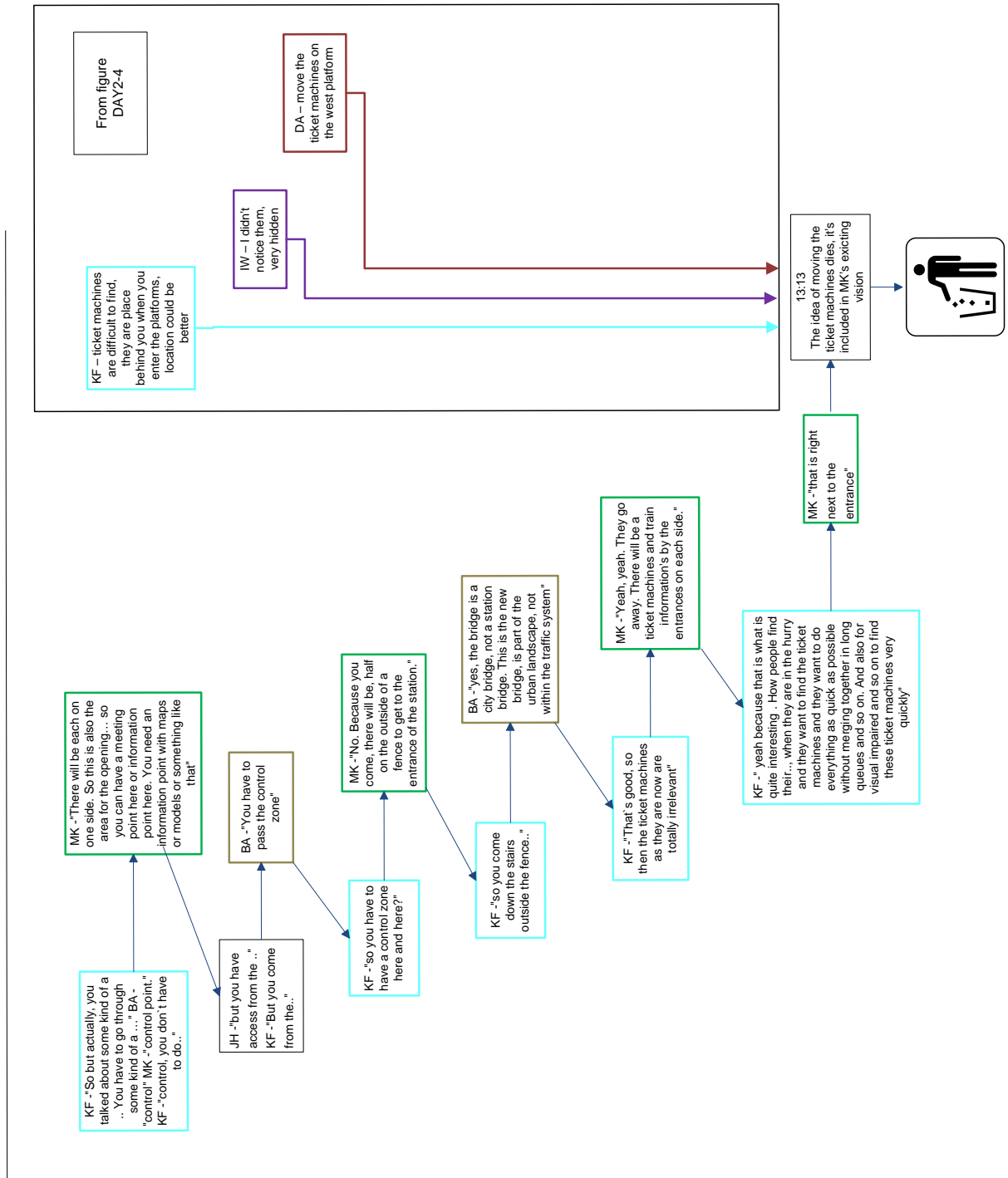


Figure 3



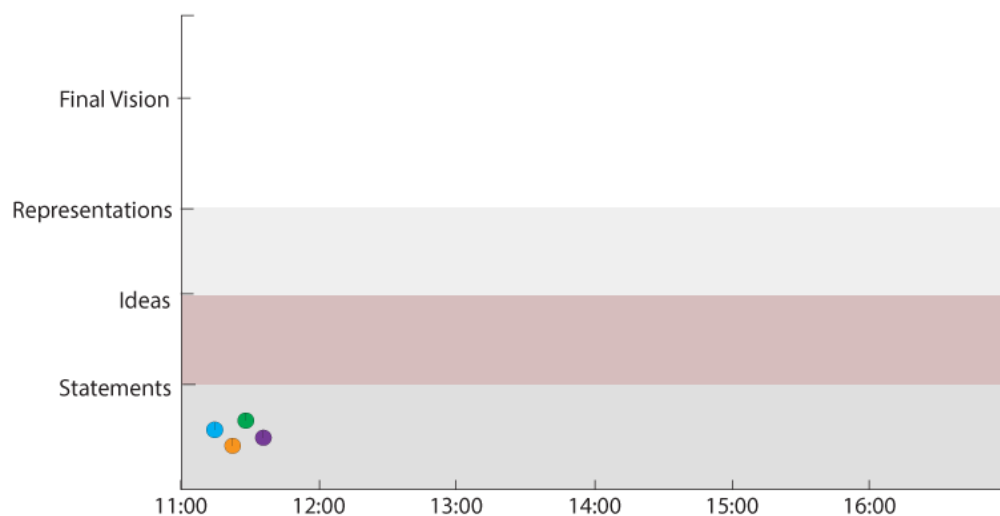
## 9.2 Creating a visual language for analyzing the lifecycles of ideas

### How to keep track of ideas

In my struggles with analyzing the lifecycle of ideas, there was a need for visualizing what happens to the ideas during the workshop. Taking inspiration from Hans Rosling's wonderful bubble representations of UN health and development statistic using the Gapminder<sup>2</sup> framework, I developed my own visual language for tracking ideas.

Just like Hans Rosling's bubbles my language relies on circular representations, but my circles are pie charts with the ability to convey multiple properties, in the form of multiple participants.

All participants are assigned an individual color, this helps to visually track who originates and contributes to an idea. The chart has four categories, visible on the background along the y-axis; individual statement, design idea, representation and final design.

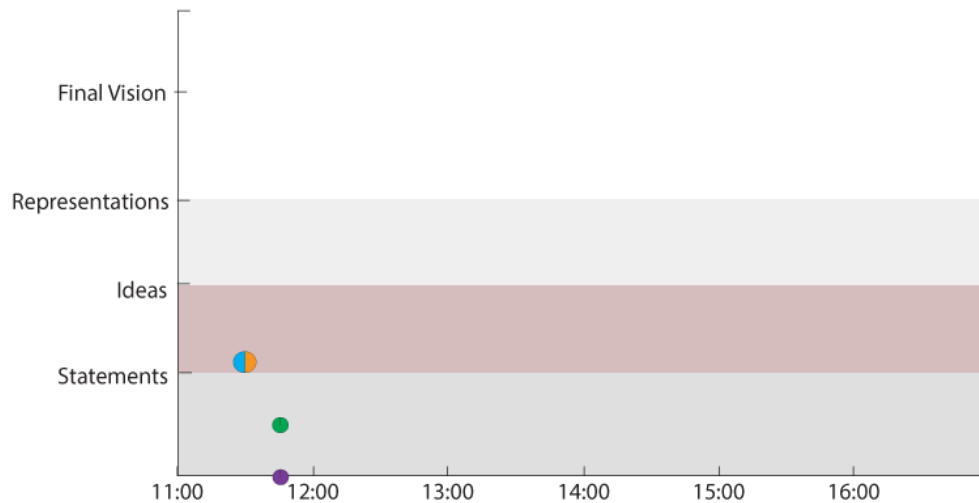


**Figure 4**

When a participant expresses an idea a bubble, with that participant's assigned color, appears in the individual statement category at the timestamp visible on the x-axis.

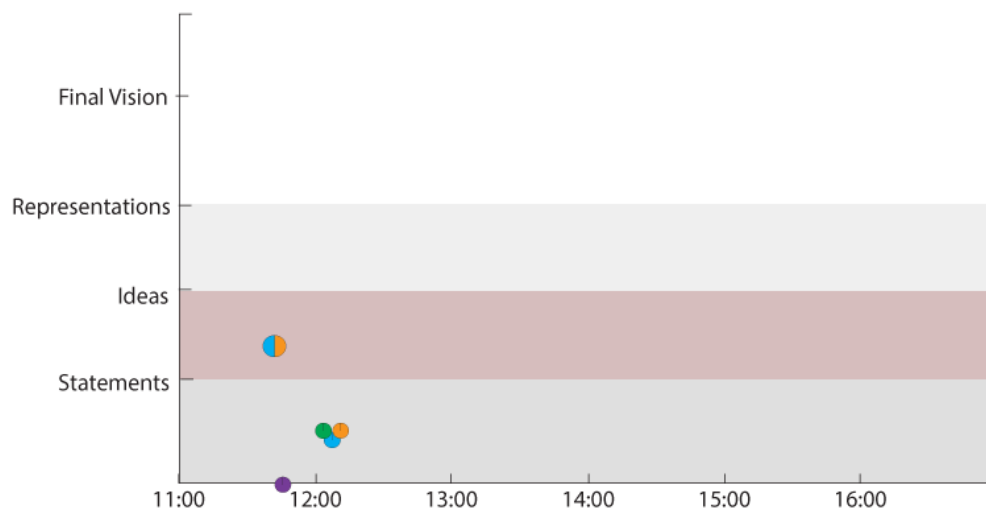
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<sup>2</sup> <http://www.gapminder.org>



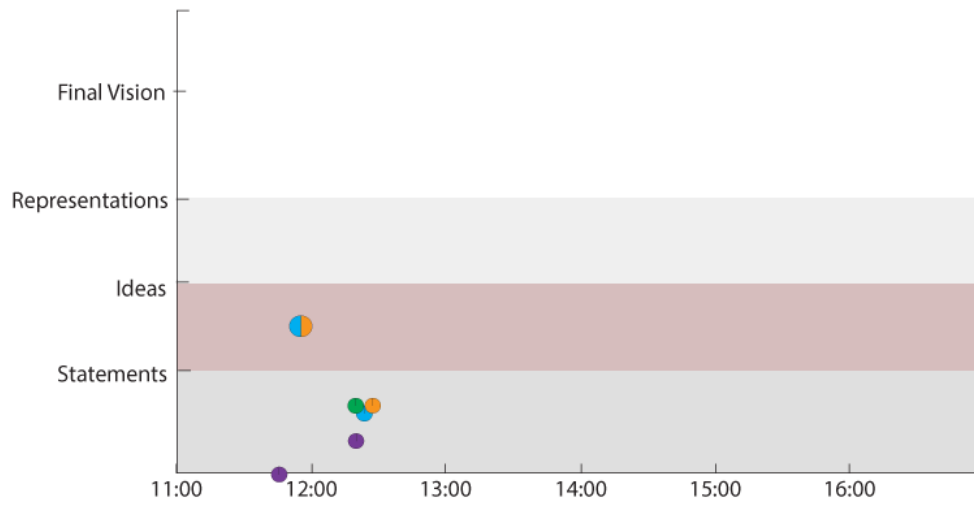
**Figure 5**

In figure 5 we see that two individual statements have merged to an idea, the individual circles / bubbles merge into a pie chart with the colors of both participants, the originator's color on the left side, the circle also increases in size / volume. Simultaneously we can see the individual statement represented by the purple bubble fall to the ground.

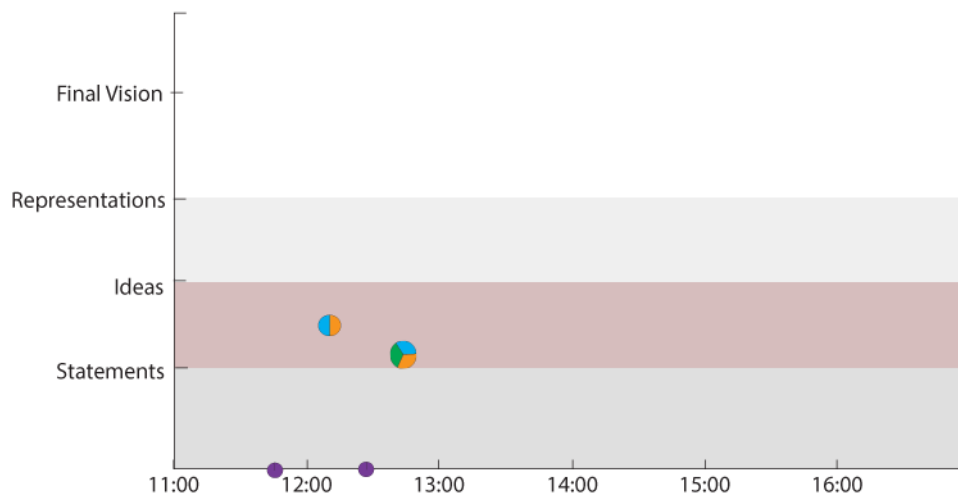


**Figure 6**

In figure 6 through 8 we see another set of statements merge to become an idea, the pie chart bubble include all three colors of the contributors, the originator's color on the left side.

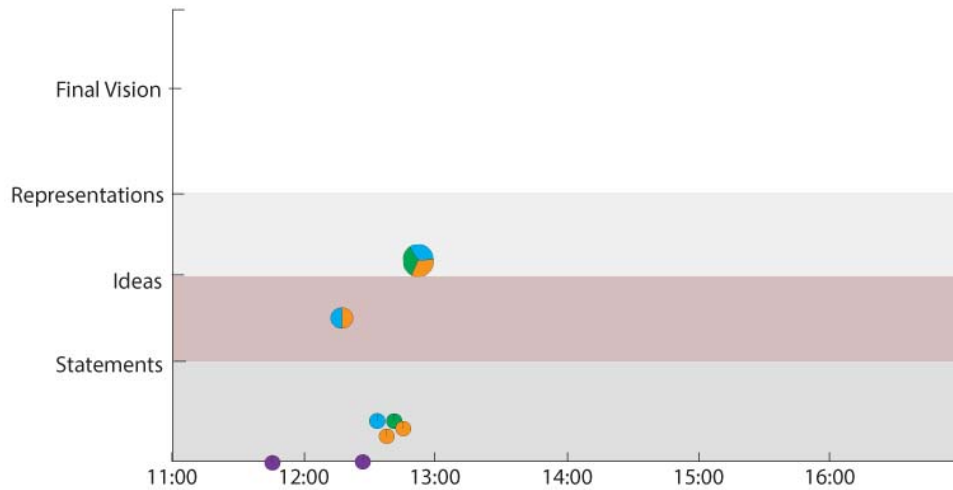


**Figure 7**



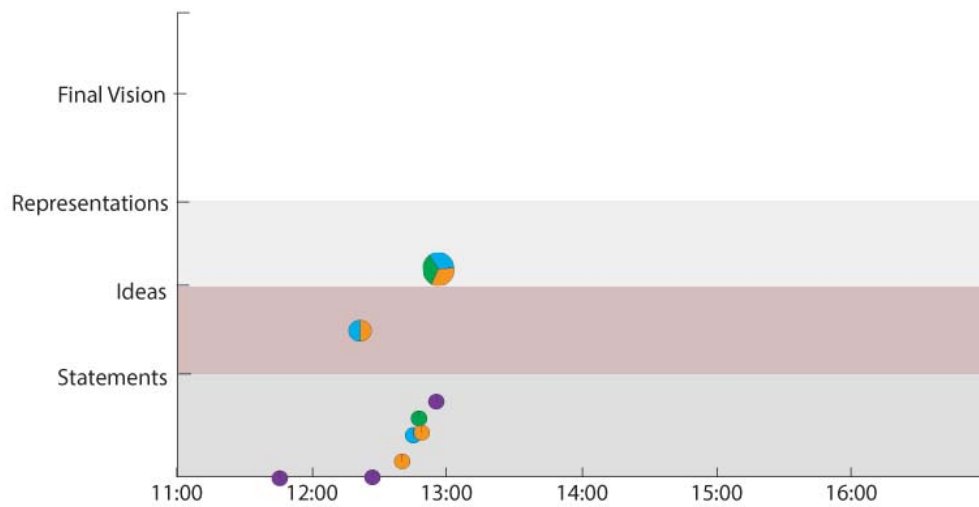
**Figure 8**

Simultaneously a second purple statement falls to the ground



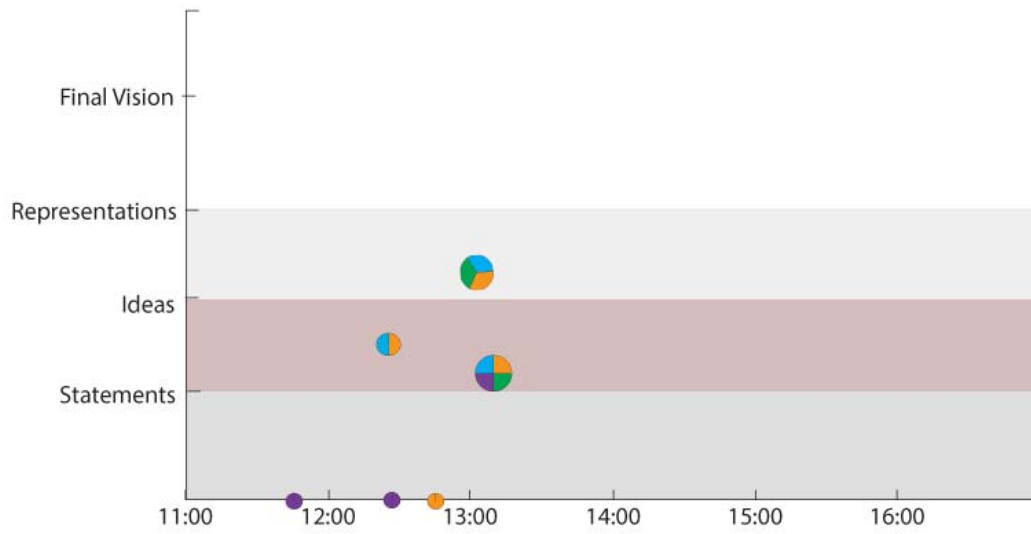
**Figure 9**

In figure 9 we can see that the participants have created a representation of their idea shown by the tri-colored bubble moving up to the Representation stage.

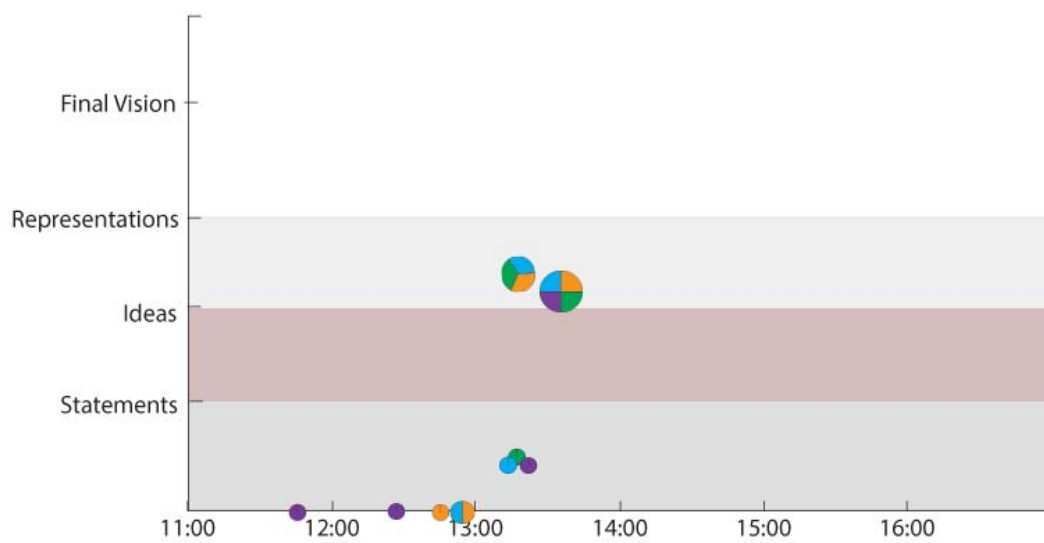


**Figure 10**

More individual statements appear as time progresses, and in figure 11 we can see that four statements have merged to form a new idea.

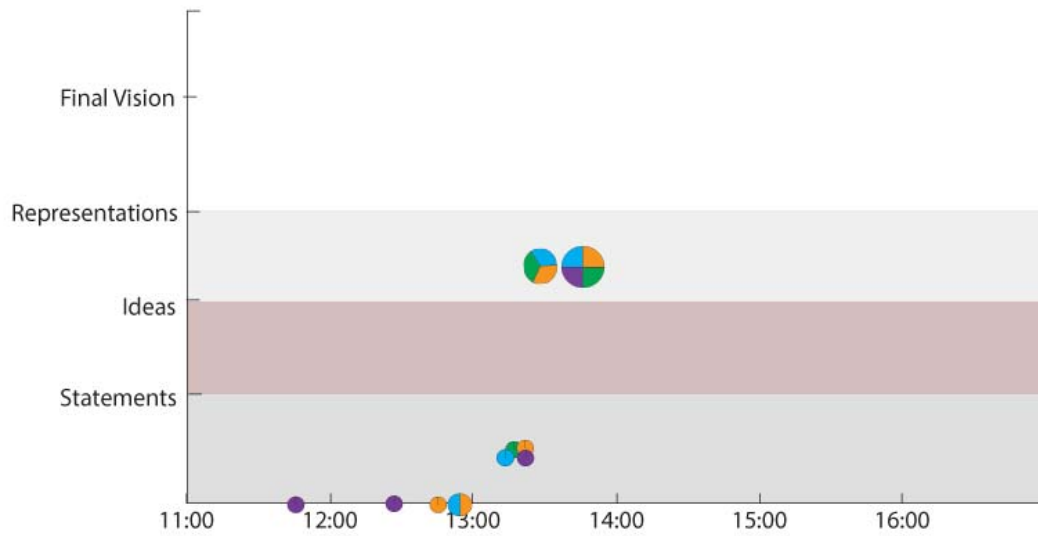


**Figure 11**



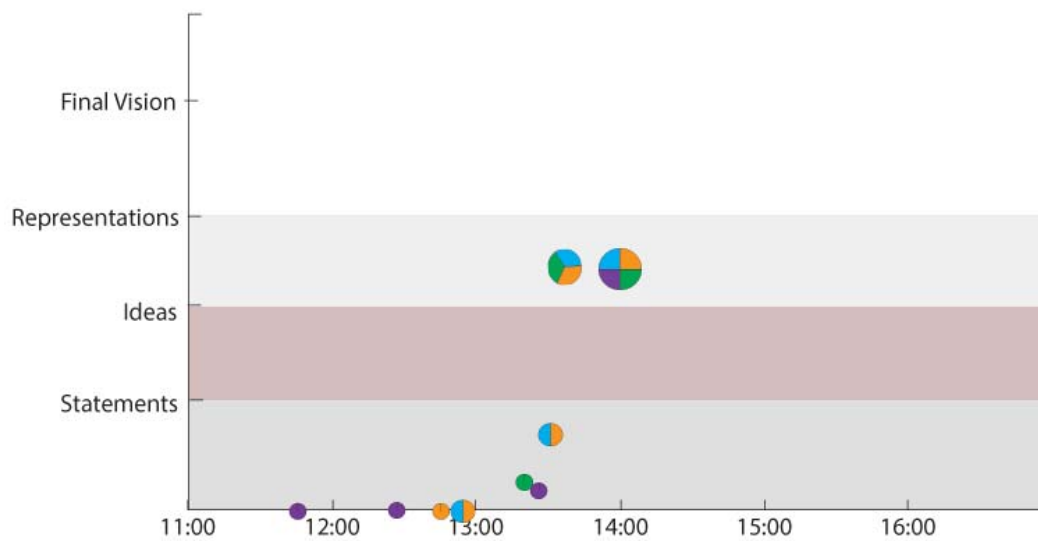
**Figure 12**

The participants have created a representation from the idea in figure 11 and the idea from figure 5 has fallen to the ground and new statements have been made.



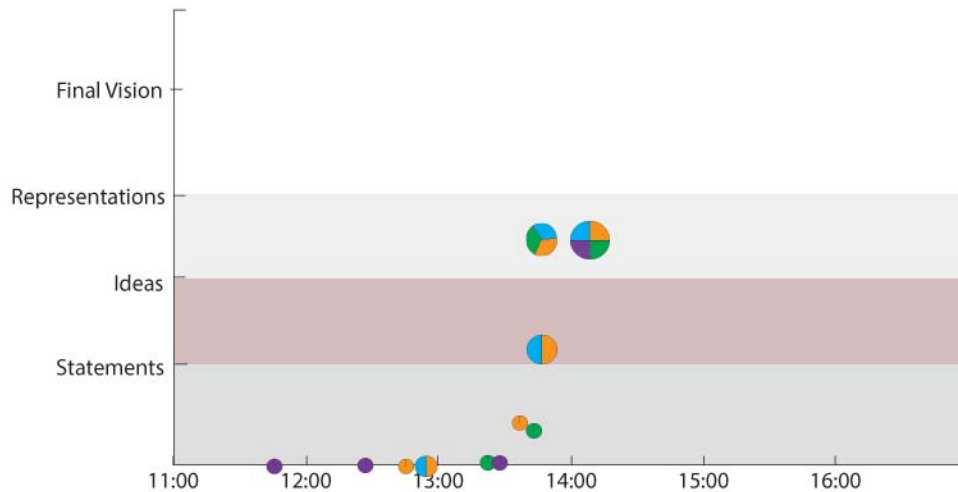
**Figure 13**

A new statement has appeared represented by the orange bubble.

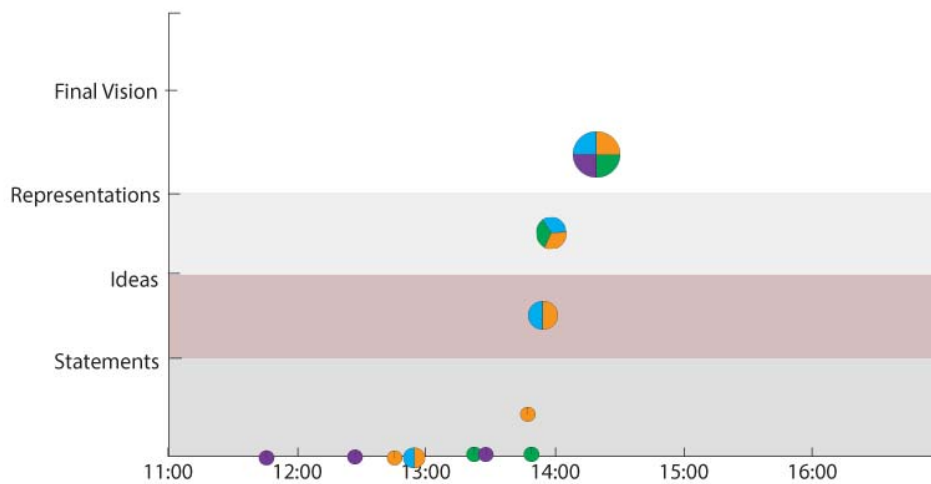


**Figure 14**

In figure 14 and 15 two of the four statements merge to form a third idea, while the other two fall to the ground



**Figure 15**



**Figure 16**

In figure 16 the four-colored bubble has transitioned to the Final Vision stage, this tells us that the representation is part of the final design specification. The bubbles would continue moving to the left until the end of the design session.

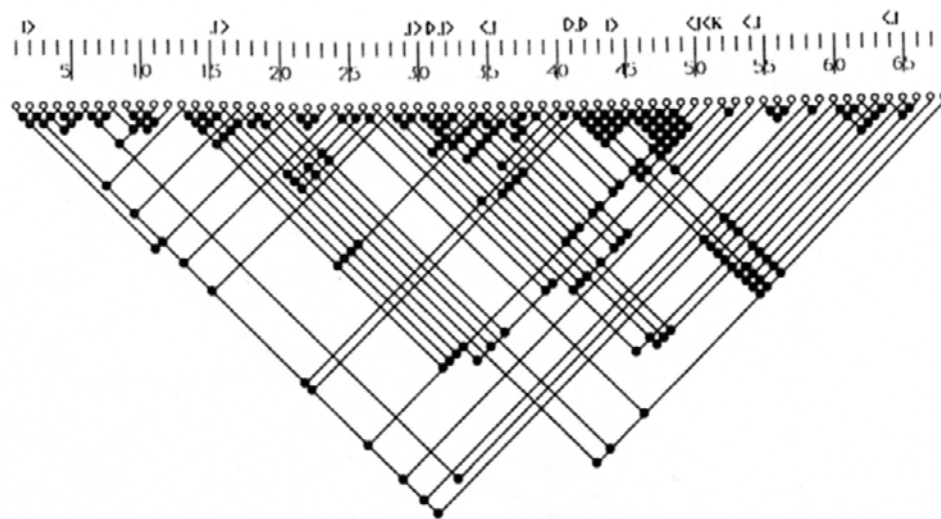
As we have seen in the narrative analysis an idea can merge with other ideas and become a design idea, moving to the design area of the chart, it can directly progress to a representation through an individual initiative, it can be blocked and fall to the ground or be abandoned and suffer the same faith.

## How does my bubble idea correlate to other design process illustration techniques?

There are similarities between Linkography (Goldschmidt) and my bubbles.

Linkography is a graphical representation of design moves linked in time, the number of links over time is registered and displayed as Link Index number.

"The number of links relative to the number of moves in a given sequence is an indicator of the 'strength' of the design process, or of its productivity"(Goldschmidt)



**Figure 17 - Linkograph Figure 3.2 pp. 75 (Goldschmidt)**

Just as in linkography where 'moves' separated in time can be connected, interactions with the ideas is noted in the form of increasing bubble size in my charts. A larger the circle size indicates a stronger and better supported design idea. Ideas that get a representation are even stronger and ideas that are a part of the final vision can be considered as the strongest ideas, ie the ideas with the highest support among the participants.

In addition to the similarities between my bubbles and Linkography, Linkography also have similarities with the theory by Langley et al. where decisions on issues are linked over time.



## 10. Discussion

In this chapter I will summarize my analysis, reflect on my conceptualizations, discuss their relation to the theory of Schön & Wiggins and Langley et al. and to Participatory Design in an effort to present a unified and combined theory.

My conceptualizations are based on patterns of participant interaction identified in the data material through visual analysis using flowcharts and bubble illustrations / animation.

Each visualization methods provide insight in to the design process that took place during the workshop. From the flowcharts one can in detail follow the lifecycle of ideas from the initial conversation leading up to the creation of an idea, through the process of creating representations, the modifications of the properties of the physical representations on the ColorTable, or on the other hand how ideas disappear or die either through active blocking, lack of interest / traction or by becoming irrelevant.

The bubble illustrations provide a slightly higher level view on the process showing how individual statements, bubbles, interact and move through the different stages to become ideas, representations and possibly part of the final vision / design specification.

Having assigned each workshop participant a unique color helps identify both the originator / originators of an idea, but also each individual contributing to the process in all stages. From the bubble illustrations we can see how different statements float as bubbles in the statement stage, when statements merge they create a larger bubble containing each contributors color, if the merged statements proceeds to the idea stage the bubble increases in size ones more and if additional participants contribute to the idea, the bubble increases in size yet again while simultaneously taking on the color of the contributing participants. The size of the bubble increases if a physical representation is created on the ColorTable and then again if the idea is part of the final vision.

It was this process of merging of statements to ideas, becoming larger than the “sum of its elements” that led me to the Design Idea concept. Design Ideas are formed through a Participatory process, represented in the merging of small bubbles in to larger bubbles, creating ideas, which then can be added to and grow in size before a physical representation is created, (the second criteria for a Design Idea), which can be manipulated and assigned

different properties and the result can possibly become part of the final vision, the third and final criteria of a Design Idea.

The bubble illustrations are as a tool useful in identifying the faith of individual statements and the contribution and influence of individuals on the overall design process and the ideas created.

From the bubbles I saw representations created by individuals become part of the final vision, alliances between participants visible in the recurring presence and contribution to ideas brought forward by alliance members, I saw how ideas died and faded away and how representations moved back down to the Idea stages before returning as a representation at a later point in time.

The state and path of each bubble is closely related to the concept of moves. Moves represent different things in the bubble animation, moves lay behind the merging of statements to ideas, the building out of existing ideas, the creation of representations, changing of properties and making ideas and representations part of the design specification.

## **My conceptualizations**

### **Design ideas**

My conceptualization of Design Ideas is, as previously mentioned, based on the user interaction patterns that emerge during my emersion in to the data material and the visual analysis. A Design Idea is formed through a collaborator process of “moves” based on a broad and mutual understanding and acceptance among the participants, and is characterized by having a representation part of the final design specification.

Design Ideas are as we have seen in chapter 4 driven forward by others than the originator merging individual ideas or initiatives along the way.

Diving deeper in to the Design Idea concept we see that there are a number of iterative sub processes contributing to the final result. These iterative sub processes can again be divided in to individual moves; contextual placement moves, changes of properties moves and moves expanding and building out ideas.

These iterative processes takes place until the participants deem the Design Idea to be “finished” in the sense that it represents and fulfill their vision or until the point that the idea either is left behind or killed. Behind each move there is a process of evaluation or discussion, it is this process which establishes the mutual understanding of the situation at hand, providing those who wish to contribute the opportunity to voice their opinions and establish a common foundation on which to take action, making the Design Idea a Participatory process.

### **Non-Participatory Ideas**

A Non-Participatory Idea has the same characteristics as a Design Idea, it has a physical representation on the ColorTable and is part of the final design specification but as the name indicates it is conceived / created by one individual and not through a Participatory process.

The reason and motivation for separating Non-Participatory ideas from Design Ideas was twofold. When analyzing the data material looking for patterns of interaction producing physical representations, I saw / found a number of physical representations created by one individual. The representations were created without interaction with other workshop participants except for technical assistance from the workshop team in adding the content created to the table and in the bubble illustrations these Non-Participatory Ideas are identifiable as single color bubbles moving from the statement stage all the way to the final vision without merging or other interactions.

A significant number of the representation present in the final design specification were created as Non-Participatory ideas, by conceptualizing this pattern as a separate category I am able to differentiate and show the influence of individual Non-Participatory moves, in this case by a stakeholder, on the design result.

### **Blocking and creation**

Blocking was a highly influencing factor in this workshop, except for a general disinterest in working with the Research Park panorama, blocking was primarily done by the two stakeholders Architect and BridgeDesigner. Architect blocked ideas from the other participants using either a third party argument or directly by using his authority position. BridgeDesigner on the other hand tried to convince the other participants that his ideas and solutions were the optimal solutions and that his designs met all regulatory requirements.

By using blocking the stakeholders succeeded in stopping a number of the ideas presented by the other participants. Looking at the bubble illustration blocked ideas are identifiable by their steep and rapid vertical trajectory from the idea stage to the bottom of the chart, to easier identify and separate blocked ideas from ideas that die it would be beneficial to add an additional visually identifiable mark, for example an X over the bubble so blocked and dying ideas can be separated by properties other than the speed of the descending trajectory.

## **Alliances**

Alliances are visually identifiable based on the number of joint ideas and representation created by the same group of participants. The constellation of participant colors varies slightly based on which participant made the initial statement and the order of the added / merged contributing participant statements.

The driving force behind many of the Design Ideas in this workshop was the alliance between UniversalAccess and Bicyclist aided by the support of PublicTransport, LocalResident and SoundResearcher. Together they formed a creative alliance and a counterweight to the alliance between Architect and BridgeDesigner, bringing the welcoming and information center idea forward throughout the workshop.

One could argue the premise of the alliances success in bringing ideas through to the final design specification with the argument that the some of the ideas originated with the stakeholders and that alliance success was a result of the silent approval on behalf of the stakeholders or one can look upon this as an even stronger alliance with silent partners.

Alliances whether they were creative or blocking, played a significant role in determining the faith of ideas during the workshop.

## Design ideas that die

Design ideas die for a number of reasons; an idea can get left behind when the participants pursue an alternative or competing idea, leaving the idea to slowly fade away and die, similar, ideas die when they are replaced by new ideas. Ideas die when no one grabs hold of them; the idea may float around in the conversation for a period of time before it slowly falls to the ground not unlike what for example takes place during a brainstorming session where a large number of ideas are thrown into the conversation and just a few survive.

There are many examples of ideas that die in the data material. I have chosen to bring attention to the pattern of surrendering an idea in favor for another idea, in this case a preexisting idea. The ticket machine idea is the only clear example illustrating the move to abandon or surrender ones ideas. BridgeDesigner's explanation of his design enabled the other participants to, as Schön describes it, "*share a common appreciative system*" coming to the conclusion that their concern were already addressed, BridgeDesigner's move was acknowledge as "*affirmed*" by the other participants as they appreciated its "*qualities*".

Design Ideas that die are represented in the bubble illustration as multi colored bubbles with a downwards trajectory falling at a slower speed then in the case of blocked or killed ideas.

## Redesign

The "*appreciative systems*" are as Schön writes variable, "*They may vary from individual to individual*", they may overlap to the extent that Schön describes them as shared and common, or individuals "may not share" the same "judgment of significance and scale" at all.

"Appreciative systems" also "evolve over time" and in a group of designers it may develop into a common appreciative system. When discussing Design Ideas that die we saw how the appreciative systems of the other participants evolved based on BridgeDesigner's explanation. The Redesign pattern showed how the appreciative systems of both Architect and BridgeDesigner evolved based on the input from the other participants / stakeholders.

When the BridgeDesigner, based on the concerns of the other participants, sees that his bridge design can create potentially dangerous, he makes a choice to alter his design.

The Redesign process shows the true value of including other stakeholders in the design process. Schön describe the difficulties of working in multiple domains and the unintended consequences that may appear, by including other stakeholders and one has the opportunity to develop a "*shared appreciative system*", learning from each other's expertise and experience,

bringing together and including potential new or previously unconsidered domains to better understand the complexity involved.

Making the move to redesign can open the stakeholder to potential critique, one can for example look upon the original design as “*negated*”, (a term used by Schön & Wiggins to describe a move which did not solve the issue), and the move to redesign a revisiting / backtracking move opening up for even more critique if new unintended consequences were to be discovered in the new design.

But the move to redesign creates new opportunities; it opens up new rooms for design, new possibilities, new domains, which were not there or not considered before the move to redesign was taken, it is the move itself, the choice to redesign which provides these possibilities.

The Redesign pattern is visible in the bubble illustration as a bubble that move from the representation stage down to the idea stage before returning to the representation stage at a later point in time and in this case moving up again to be part of the final vision.

One could even say that the bridge actually moved from the final vision through the representation stage and down to the idea level before returning back up based on the initial presentation of the bridge as a finished, ready to build, solution.

## **Reflecting on the conceptualizations**

How smart was it to be so strict in defining categories?

Creating conceptualizations based on the data material, before reading relevant theories, was an interesting but time consuming activity with many iterations trying to understand, identify and formulate descriptions of the different interaction patterns derived from two different visual analysis methods.

With the Workshop being an experiment in Participatory Design and my training background Participatory Design based, the conceptualizations are born from a Participatory perspective and one could argue that one only finds what one looks for.

Using two visualization tools provided two different levels view, one more granular than the other, while the bubble animation provided a lifecycle view on the ideas, the flowcharts provided more detailed information on the process and dialogue taking place during the design process. The different levels of granularity proved useful in the creation of my conceptualizations but my conceptualizations provide a limited tool set for understanding the

design and decision-making process based on this I looked to the writings of Schön & Wiggins and Langley et al. in order to deepen my understanding.

## Schön & Wiggins

The unit for analysis has been the concept of seeing-moving-seeing, a term first introduced to me through the writings of Schön & Wiggins.

Schön & Wiggins theory on the design process a reflective conversation based on the iterative process of seeing-moving-seeing has been instrumental in the understanding my own conceptualizations and helped positioned them in relation to an established framework for understanding the design process.

Schön & Wiggins perspective on the process of design is that of the sole designer / architect, where as I take a Participatory perspective analyzing the design process from a group activity standpoint. In addition to the difference in perspective there is also a difference in the level from which one views the design process, Schön & Wiggins take a micro level view when they analyze the design process as a sequence of individual moves where as I take a slightly higher view, looking at the different patterns of moves and their nature within the design process itself.

Even with this difference in perspective I have found several similarities between my conceptualizations and discovered patterns and the theory by Schön & Wiggins.

Schön & Wiggins describe the design activity as a process of seeing-moving-seeing, a reflective conversation, where seeing is a judgment of quality, a normative judgment of quality on which “moves” are made and where the result is evaluated by another act of seeing, evaluating the implication of the decision in multiple domains.

There are different types of seeing, seeing is more than the visual registering of information, Schön & Wiggins write that the designer also sees to construct meaning, by identifying patterns and give them meaning. Schön & Wiggins write that seeing “*involves a judgment of quality*” determining “*what’s bad and needs fixing, or what’s good and needs to be preserved or developed.*” Seeing is in large a “*subjective judgment*”.

Seeing is the foundation, a prerequisite, for moving. Seeing determines what happens next in the design process, the act of seeing determines whether one moves forward or backwards in the design process, whether one pursues an idea, revisit a usable position, (meaning the last

position before a negated move), or leave the idea behind.

In a group setting the act of seeing is not done by one designer as in the case of Schön & Wiggins, seeing is done by multiple participants. It is the act of seeing by many participants that provides different perspectives which come together to create a shared view of the world, a “*shared appreciative system*” and enables Participatory Design by providing the opportunity for different stakeholders to influence the decisions through contributing their input. The establishment of a “*shared appreciative system*” is especially visible in the case of Redesign.

Through seeing the designer evaluates if the move is affirmed or negated, meaning whether the move was successful in addressing the problem or if it failed and the designer needs to revisit the previous state before making a new move in an effort to solve the problem.

My data material provides only a few examples of revisiting as a result of seeing, the participants, in general, do not try out moves and then deem them as negated before taking a step back. In my observation and video analysis I found no examples of content being added to the Color Table and then later removed after a normative judgment of its qualities.



**Picture 51 - Discussion at the Content board (photo: Lisa Ehrenstrasser)**

The judgments of qualities seem to take place before the content is added, in the discussions around the table or around Content board, with some selected content cards almost reaching the ColorTable but remaining in the participants’ hands before being returned to the Content board. The most prominent example of revisiting as a result of seeing is found in my



conceptualization named Redesign and “limited interest”.

The act of seeing and seeing by multiple participants is the corner stone of my Design Idea conceptualization. My characterizations of the process behind the creation of Design Ideas have similar patterns of iterative activity as portrayed by Schön & Wiggins. When the participants create Design Ideas they engage in a discussion of the present situation, judging the different qualities / properties, based on the analysis of the present situation they make a move to explore the situation further, using the tools of the ColorTable, making contextual moves, placing objects or paths.

Each placement is followed by a second act of seeing, making a judgment on the objects position, scale and properties, based on these judgments the participants make new moves to change properties, position or expand the ideas further.

What separates my conceptualization from Schön & Wiggins is the sub-division of the design activity in to multiple iterative processes within the same sequential structure, where the participants revisits negated issues rather than “immediately” take a step back to take the design in a different direction.

I see the action of revisiting an issue within the same context as Schön & Wiggins evolving appreciative system and the complexity of designing in multiple domains and its unintended consequences. Schön & Wiggins “*distinguish experts form novices.*” on the basis of the development level of the designers’ appreciative systems and the ability to foresee consequences in multiple domains. In my mind this opens up for another possible way of retracing ones negated moves, which is not discussed by Schön & Wiggins, backtracking. Inexperienced designers will discover unintended consequences, and arguably not immediately, but as a result of future moves and will then either revisit a previous state and fix the problem while retaining the design moves made beyond that point, or backtrack to the same previous state discarding all moves made and continue designing from that state / point on.

Viewing the design process as a sequential process with many iterative sub processes in different domains within the same context, as conceptualized, limits the need for backtracking as unintended consequences that affects some and not all domains can be revisited within those specific domains.

Conceptualizing Non-Participatory ideas as an individual category is a result of my Participatory perspective. Schön & Wiggins theory is especially applicable in understanding Non-Participatory ideas as Non-Participatory ideas have the same sequential pattern of seeing-moving-seeing and the activity of seeing-moving-seeing is done by one person, the sole designer / Architect. Non-Participatory ideas / representations are the result of one person's appreciative system but it's presence in the final design specification is a result of silent acceptance by the other participants.

In chapter 6 we saw the pattern I conceptualized as “limited interest”, where the participants abandoned their work on the Research Park panorama and returned to work on the station area. As discussed in chapter 6 one can look upon this abandonment as a move which did not succeed, based on a normative judgment of the result and from which participants step back to continue down another path. Just as the decision to preserve the station building these normative judgments of quality give the design process what Schön & Wiggins calls “thrust” and “direction” and prevents the process from becoming “unmotivated”, the participants selected to continue with the work they considered more relevant or interesting.

Schön & Wiggins write that the designer ability to judge the quality of a move is linked to the designer's appreciative system. The appreciative system is what enables the designer to understand the effects of a move in multiple domains. The appreciative system is by Schön & Wiggins considered a variable, it varies from individual to individual and it evolves over time. The evolving appreciative system can be used to understand the patterns conceptualized in chapter 7 and chapter 8. In chapter 7 we saw the participants surrender their idea of repositioning the ticket machine as BridgeDesigner explained his design for the station area in more detail and the design idea died. The appreciative systems of the other participants evolved and BridgeDesigner's explanation created what Schön & Wiggins call a “*common appreciative system*” a shared understanding that can occur “among a certain group of designers”.

In chapter 8 the same phenomenon presented itself, but this time the roles were reversed. The exploration of the station area placing paths reviled a possible conflict between pedestrians and bicyclist on the new bridge. The input from the other participants evolved the stakeholder's appreciative system triggering the move to redesign.

There are a number of similarities between my conceptualizations of interaction patterns and the theory of Schön & Wiggins. The patterns of interaction leading to the creation of design ideas and the redesign of design ideas have the same iterative aspect as the process of seeing-moving-seeing, it is possible to express most of my conceptualization using the theory of Schön & Wiggins, but there are a number of differences. In my conceptualization I differentiate between Participatory interaction and the actions of individuals while Schön & Wiggins focus is on the individual designer. Schön & Wiggins take a micro level step by step view when explaining the design process, while I apply a more macro view, focusing on the different interaction patterns and processes taking place within the overall design process. It is in my focus on the Participatory interaction that one finds the concepts and processes that cannot completely be explained using the theory of Schön & Wiggins. In chapter 6 I discussed the concepts of blocking and alliances; these are interaction patterns with strong influences on the design result and a result of the participatory frame of the workshop. The concept of alliances can maybe partially be explained using Schön & Wiggins if one removes the power struggle or issue and focuses on the common shared appreciative system as a base for the alliance.

After having analyzed the data material and created my conceptualizations, without prior knowledge of Schön & Wiggins theory, it is interesting to observe the similarities between my findings and the design process described and that the differences predominantly lie in my Participatory perspective and my separation of the design activity into sequential sub processes of moves.

The design process is a decision-making process, up to this point I have focused on interaction patterns between stakeholders and the activity of seeing-moving-seeing to understand who makes decisions and the basis for these design moves. In the next section I will focus on the decisions and the relationship between decisions, applying the Langley et al. theory on decision-making.

## Langley et al.

The idea of applying Langley et al. in my analysis of the design process comes from reading a draft of Bratteteig & Wagner's article "Collaboration, power and choice: the case of participation in design" (submitted COOP 2014).

Langley et al. provides a frame work for understanding the decision-making process within large organizations and focuses on the relation between decisions and the effect of decisions over time, conceptualized as linkages and networks.

The Langley et al. theory focuses on large scale organizations, meaning that all concepts are not applicable in understanding the decision process within a small workshop group.

Despite this difference in scale, Langley et al. have provided me with new insight in to the events and decisions made during the ColorTable workshop.

In their article Langley et al. advocate a view moving beyond understanding an organization as a system of decisional processes and towards the concept of issue streams. Langley et al. write "*As we move the focus from decision processes to issue streams, interactions or linkages between different decisions now become key to understanding how organizations behave over time.*"

Langley et al. divide these linkages in to three different categories; Sequential linkages, Precursive linkages and Lateral linkages.

### Sequential Linkages

Langley et al. define Sequential Linkages as "*interrelationships between different decisions concerning the same issue at different points in time.*"

Sequential Linkages can be separated into three different categories, Nesting Linkages, Snowballing Linkages and Recurrence Linkages.

Nesting Linkages are found when "*A major decision (A) involves a series of more minor subdivisions (B, then C)*". Snowballing Linkage involve "*A series of relative minor decisions*

“snowballing” into a major one.” And finally Recurrence Linkages which occur when “The same decision situation recurs repeatedly.”.

There are examples of Nesting and to a degree, Snowballing Sequential Linkages in the data material, but when comparing the Langley et al. theory on Sequential Linkages to my conceptualization of interaction patterns I find Recurrence Linkages the most applicable. Sequentially Recursive Linkages are formed when “*similar decision situation ... recur because prior choices have not finally resolved the issue*”.

Recurrence Linkages can be used to describe both the concept of redesign, where the design of the bridge is unresolved due to a potential conflict between pedestrians and bicyclist, the iterative placement (moves) of the information and welcoming area around the station area as well as the expansion or building out of properties and functionality of the representations. It may seem strange to include both Redesign and placement moves in within this concept and refraining from including placement moves as negated moves / revisited when discussing Schön & Wiggins.

Revisiting refers to the action taken when a move is negated, where the designer needs to rewind / go back to a previous state before the unsuccessful move in order to take the design in a new direction. This looping back pattern is similar to the pattern of Langley et al. Sequential Recurrence Linkages were “The same decision situation recurs repeatedly”.

I have chosen to view recurring placement moves within the Langley et al. framework but selected to differentiate between Langley et al. and Schön & Wiggins by not viewing recurring placement moves as negated moves as they are so closely related to the building out or adding properties to representations. (My interpretation may be a case trying to fit a square peg in a round hole, “forcing” empirical data to match theory)

## **Precursive Linkages**

Precursive linkages are decisions linked across issues and time where “A decision on one issue affects future decisions on other issues”, Langley et al. describe six different types of Precursive linkages; Enabling, evoking, cascading, Merging, Preempting and Learning. There are many examples of Precursive linkages between decisions made during the

workshop and being able to understand the relation and effect / impact of decisions over time provides insight in to the design process and the dynamics between the participants. Let's take a look at the individual types of Precursive linkages and their application in my analysis.

### **Enabling**

Enabling linkages have two properties as described by Langley et al., they are created when a decision removes “blocks” thus enabling other decisions to be taken or when a decision “make certain outcomes more likely”. In my analysis I found the latter applicable in understanding the effects of decisions by stakeholders.

When the Architect and BridgeDesigner made the move to keep the participants working in the panorama with the building they made a decision that created what Langley et al. a Precursive linkage of the Enabling type.

An Enabling decision makes, as mentioned, “certain outcomes more likely” in this case the decision to keep working with the building would increase the likelihood of the participants integrating the building in their design or design process and as we have seen the participants actively incorporated the building in their Design Ideas. Langley et al. makes references to “management” making enabling decisions, in an organizational context, when quoting Quinn, and it interesting to observe that it is the two most “powerful” stakeholders in this workshop that makes the enabling decisions.

### **Cascading**

The decision to keep working with the building also created Cascading linkages, linkages formed when one decision leads to series of decisions across a variety of issues, in this case decisions on for example functionality and positioning of other design elements in relation to the building.

I find that most decisions have an impact on future events so Cascading as a term is both easy and difficult to apply at the same time, requiring a subjective judgment of level of impact on future decisions to be useful.

## Preempting

Preempting linkages occurs when “*One decision may render other issues irrelevant, obsolete, ...*” in this workshop Preempting linkages were created when ideas were blocked, rendering other related issues irrelevant or as we saw in the case of the idea to relocate the ticket machines that BridgeDesigner’s preexisting design of the station area made the relocation idea obsolete as the issues were already resolved, leading to the death of this Design Idea. Preempting decisions had significant impact on the design specification, they were in this case created by stakeholders through active blocking of other ideas or as a base on which the other participants could surrender their own idea.

## Evoking

Precursive Linkages of the Evoking type are found when “*One decision may evoke new problems or opportunities.*” I have until now not discussed or focused on Evoking Linkages in my analysis, there are examples of Evoking Linkages in the data material. The decision to explore the flows around the station area, led to the discovery of problems, creating Learning Linkages which will be discussed later, which in turn provided the participants with the opportunity to redesign the bridge to resolve the problems.

## Merging

Langley et al. define Precursive Linkages of the Merging type as when “*A set of unrelated issues come to be seen as a single one and so are decided upon symbiotically*”. The Langley et al. definition have both differences and similarities with my conceptualization of Merging. Both concepts involve the merger of individual parts to one whole, in the case of Langley et al. it is the merger of unrelated issues to one single one and in this case it is the merging of individual initiatives and ideas in to larger Design Idea. The difference between the seemingly almost identical concepts lies in the word “*unrelated*”, my conceptualization is based on the merging of related issues or ideas and that is why I find the Langley et al. concept of “Contextual linkages” between Issue Streams where “*issues are linked because they bathe within the same ... context*” more in line with my conceptualization of Merging. My

definition of Merging is based on the empirical data and my interpretation of it and if the Langley et al. definition did not include the word “*unrelated*” the two concepts would be almost identical.

## **Learning**

Langley et al. define Learning as “*Early decisions generates learning that may influence later ones in the same and other areas*”, the inclusion of decisions within the *same area* differentiates Learning from the other Precursive Linkages as Precursive Linkages refer to linkages across different Issue Streams. With this in mind one can apply the concept of Learning to explain the events that took place and resulted in the redesign of the station bridge. Learning, from the input of others, then becomes a key indicator of the Participatory redesign process that took place in this workshop.

Not unlike Schön’s concept of an evolving appreciative system Langley et al., write that “*Early decisions*” can “*generate learning that may influence later*” decisions, these decisions form what Langley et al. describe as Precursive Linkages. The concept of Precursive Linkages may however not be directly transferable as Precursive Linkages refer to linkages across different Issue Streams, but Precursive Linkages of the Learning type may occur within the same issue area.

## **Lateral Linkages**

Lateral Linkages exist when “*Issues are linked because they compete for resources*” either *financial*, “*managerial time and energy*” or “*political support*”, so called *Pooled Linkages* or when “*Issues are linked because they bathe within the same organizational context, composed of the same ...people, culture/ideology, structure, strategy*”, *Contextual Linkages*.

The Langley et al. concept of Lateral Linkages is not directly applicable to my conceptualizations as Lateral Linkages and especially Pooled Linkages involve a competition for resources and is outside the workshop frame.

Contextual Linkages, although outside the design situation, have some similarities with my concept of alliances, as constellations of stakeholders form based on mutual interests or



enthusiasm for Issues within the same context. Alliances have as previously mentioned significant impact on the design process and it would be beneficial to have a theoretical framework to gain deeper understanding of the inter participant dynamics within the context of the design situation.

Langley et al. provide a framework for understanding the decision-making process within large organizations, making the application of their theory challenging when trying to analyze the design and decision process within a small workshop group.

Looking beyond the scale and the difference in perspective, the Langley et al. theory proved valuable in understanding the linkages between decisions and their origins, the effect of decisions on future events and the relationship between participants and their impact on the final design specification.

There are a few differences between my conceptualizations and the Langley et al. theory, differences which cannot fully be explained as linkages between Issue Streams.

In the theory of Langley et al. there is no distinction between individual or group decisions or moves, thus the difference between Design Ideas and Non-Participatory ideas cannot be made or explained beyond the process of decisions. Langley et al. recognizes “*the central role of individuals as decision creators, actors and carriers*” but that is as far as the distinction goes. The Langley et al. theory has no term matching my conceptualization of blocking, either in the form of limited interest or direct or indirect blocking by stakeholders. Langley et al. can also not shed light on the concept of alliances between participants and stakeholders and the “fight” for power / power struggle within a group.

Analyzing the decision-making process as links between Issue Streams, provides a toolset for retracing the origin of ideas and decisions, were as Langley et al. stop at analyzing the decision one can continue the analysis applying Schön & Wiggins as well as my own conceptualizations to understand the premise and process behind each decision, tracing the impact of individual participants on the final design specification.

But before proceeding with establishing a combined theory, let us take a quick look at the similarities and differences between Schön & Wiggins and Langley et al.

Schön & Wiggins view on the design process focuses on the individual designer or Architect and the reflective conversation with the situation in hand through a process of seeing-moving-seeing, it's a micro level view on the design process as a sequential and iterative sequential series of moves. The Langley et al. theory takes a macro level view on decision making within organizations, with focus on Issue Streams / move sequences, the linkages that creates these sequences and the context in which they exists. Even though there is a difference in the view level there are overlapping elements in both theories, for example both theories have a sequential and iterative sequential view on the nature of decisions.

Langley et al. focuses on the linkages between Issue Streams and how decisions in one Issue Stream can effect or influence decisions in other Issue Streams through Precursive or Lateral Linkages. Schön & Wiggins have a similar recognition on the influence and effect of moves as they write that a designers move may have unintended effects in previously unknown or unconsidered domains. Both theories recognizes that lessons can be learned from previously failed moves either through an expanding appreciative system in the case of Schön & Wiggins or through Precursive Linkages of the Learning type in the theory of Langley et al.

### **Revisiting vs sequential recurring linkages**

Revisiting refers to the action taken when a move is negated, were the designer needs to rewind / go back to a previous state before the unsuccessful move in order to take the design in a new direction. This looping back pattern is similar to the recurrence pattern of Langley et al. Sequential Recurrence Linkages were "*The same decision situation recurs repeatedly*". I have chosen to view recurring placement moves within the Langley et al. framework but selected to differentiate between Langley et al. and Schön & Wiggins by not viewing recurring placement moves as negated which is the pretense for revisiting / going back to a previous state.

While Schön & Wiggins can help us understand the process behind individual moves and Langley et al. can contribute to our understanding of the relations between decisions, both theories come short in explaining the decision making process within a Participatory Design setting.

## 11. Conclusion

In this thesis I have conducted a two part analysis of the empirical data from the Oslo ColorTable workshop; my findings are based on a Grounded Theory visual and narrative analysis.

Based on my initial analysis I have conceptualized as set of user interaction patterns which I then have tried to further analyze applying the theories of Schön & Wiggins on the design process as a “sequential structure” of seeing-moving-seeing and Langley et al. theory on the decision making process within organizations as interlinked issue streams and issue networks.

The empirical work for this thesis were done prior to reading the works of Schön & Wiggins and Langley et al. and it has been fascinating exploring the similarities and differences between the different theories and my findings on which I have made my conceptualizations. I has for me personally been a challenge to apply such different theories on decision making in the analysis of the design process, as these theories provide very different perspectives and levels of granularity.

Schön & Wiggins provide a micro level view on the decision making process in design, focusing on the sequential activity of seeing-moving-seeing, where the designer bases her/his decisions on a “normative judgment of qualities” before and after each move, relying on the designers “appreciative system” to evaluate each move.

Langley et al. on the other hand understands the decision making process in organizations as streams of issues linked either sequentially, laterally or percussively over time, focusing on the relation between decisions and not the events leading to each decision.

In my analysis I have found similarities and equivalents within both theories positioning my concepts between the two theories in many instances, but my analysis has also “uncovered” interaction patterns with significant influence on the design and decision making process in a group setting not discussed or mentioned in these theories. These patterns were identified by taking a Participatory perspective focusing on the interaction and processes taking place within the group.

With the twenty-twenty vision of hindsight one can discuss whether it was wise to do the empirical work before familiarizing oneself with the theoretical work of Schön & Wiggins and Langley et al. My analysis and conceptualization have as mentioned similarities within both theories, which implies that time could have been saved when performing the analysis, as

these theories provide the necessary framework for understanding several of my conceptualizations.

There are however “deficiencies” to these theories when trying to analyze the inner workings of the Participatory Design process within a workshop group, as well as to analyzing the life cycle of Design Ideas, this is where I can contribute with my thesis.

The goal of Participatory Design is the inclusion of those affected by the design in the design and decision-making process, which often necessitates a transfer of power between stakeholders. By conceptualizing interaction patterns such as alliances and blocking I can bring focus to the power struggle taking place within a group, which have identifiable impact on the final design specification and is not discussed as concepts in any of these theories, in the case of Schön & Wiggins due to the sole designer perspective and in the theory of Langley et al. due to the focus on the interrelationship between decisions on issues within an organization and not on the relationship between the organization members.

I am of the opinion that I have identified and presented a rich example of true Participatory Design in the identification of the Redesign interaction pattern, where the two stakeholders came to the realization, based on the input from other participants, that their design had unintended consequences and a redesign took place with the participation and contribution from nearly all participants, indicating a transfer of power away from the two most prominent stakeholders. Secondly, my conceptualization of Design Ideas illustrates a Participatory process with multiple contributors with identifiable impact on the final design specification different from the traditional design process captured in the Non-participatory ideas concept. Using flowcharts and bubble animation as a visual analysis tools provides an additional level in trying to understand the design and decision process by being able to show the influence of individual group members on the final design specification, providing a similar granular understanding of the design process as Schön & Wiggins, but in a group design setting. The traceability of influence on a design and decision-making process in the bubble animation as well as my observation and findings on “seeing” in a Participatory Design setting is probably the most general applicable contribution of my work and where further research and development could be interesting to see.

Writing this thesis has been an adventure with many negated moves, backtracking several times to make moves down different paths in order to refine the scope and focus of this paper, revisiting unresolved issues when necessary. It has been a challenge to apply the theories of Schön & Wiggins and Langley et al. due to the differences in perspective and the interpretations of my findings changed as my understanding of these theories evolved and in cases the initial interpretation changed almost to the opposite in light of these theories.

By combining the theories of Schön & Wiggins on the reflective design process through moves and Langley et al. theory on the relation between decisions in Issue Streams with my conceptualizations I bridge the gap between the micro and macro view on the process of design, providing a view in to the decision-making process within a group in a Participatory Design situation.

Schön & Wiggins and Langley et al. provide little insights into the inner workings of group design as they respectively focuses on the actions of one designer or the links between decisions on an organizational level.

In a Participatory Design group there are different stakeholder interests, through the bubble illustrations I provide a method and tool for tracking the influence of each participant on the decision-making process, expanding Schön & Wiggins notion of seeing-moving-seeing to a collaboration and negotiation among stakeholders before the move.

It is through the analysis of alliances and the action of blocking one can get a deeper understanding of the group dynamic and the power struggle that can take place between stakeholders and other participants, thus providing a mid-level perspective on the decision process.

Through the use of animation I can provide a mid-level granular view, tracking individual user action and interaction throughout the design process, and aid in the analysis of individual contributions if desired. The bubble animations are directly linked to my conceptualizations, showing creative alliances creating Design Ideas, individuals creating Non-Participatory ideas, blocking actions etc.

Participatory Design is a bottom-up approach to designing and from my analysis of the empirical data easiest identifiable at a granular level, where the motivation behind each design move can be analyzed and understood.

Looking beyond the granularity of the micro perspective Langley et al. place the decision in a larger context, focusing on the interdependencies between decisions and how the context

influences the seeing before and after.

So what have I uncovered about what actually happens when we design? And why does the design result turn out the way it does?

From Schön & Wiggins we know that the sole designer designs through a sequential process of seeing-moving-seeing, where seeing is a normative judgment of quality based on the designer's appreciative system, determining whether or not the move was successful / affirmed or unsuccessful / negated. Schön & Wiggins description of the design process correlates with my findings in the conceptualization "Non-Participatory ideas".

When it comes to designing in groups seeing is done by many participants, in contrast to Schön & Wiggins theory I find, that in this case, the participants only engage in seeing before the move and not after.

When the participants create Design Ideas they engage in a sequential process, with iterative or recurring sub-processes, creating representation through "contextual moves", placing and positioning them through "contextual placement moves", modifying their properties through "change of properties moves" or expand the Design Ideas through "Expanding / building out moves".

When it comes to why the design result turn out the way it does? We know from Langley et al. the influence context has on the seeing before and after. Schön & Wiggins as previously mentioned provide limited insights when it comes to group design, but as we have seen in chapter 8 the development of a "common shared appreciative system" influenced the final design specification when it triggered a redesign of the station bridge. In my analysis I found several interaction patterns influencing the outcome of the group design process. Blocking and Alliances had direct impact on design specification and in chapter 7 we saw how Design Ideas die as a result of participants abandoning or surrendering their own ideas in favor of a preexisting idea which addressed their concerns.

Did I then uncover all facets of the activities involved in design and the reasons for why a design result turns out the way it does? No, I am not in the position to generalize over my findings as they are specific to day two of the Oslo ColorTable Workshop. The conceptualizations I created were patterns that became evident to me and if others where to analyze the material they might see other things.



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## Appendices

The 160 page appendices to this thesis contains images identifying workshop participants, to protect their privacy the transcripts have been removed and are only available upon request by contacting Tone Bratteteig: [tone@ifi.uio.no](mailto:tone@ifi.uio.no)



